افتتاحية العدد

هيثم أدريس*

نكبة سنة ١٩٤٨ شهدت بلاء عظيم اصاب الشعب الفلسطيني نتج عنه احتلال الاراضي الفلسطينية و خروج كثير من الفلسطينيين من ديارهم ومن فلسطين وضياع كثير من ثروات الشعب الفلسطيني. وكثير من اهل فلسطين ما زالو حتى الأن يعيشون كلاجيئين في بلاد شتى ويعانون من فقر و نقص في الخدمات، حتى بعد انشاء *وكالة الأمم المتحدة لإغاثة و تشغيل اللاجئين الفلسطينين في الشرق الأدنى* المعروفة *بالأنروا* والتي كان الهدف من انشائها تأمين الخدمات الاساسية للاجيئين الفلسطينيين الموجودون في فلسطين، الأردن، سوريا و لبنان.

وللمساهمة في التركيز عل هذا الموضوع، اشتركت مجلة *حوليات القدس الطبية* بمشروع العدد العالمي عن الفقر والتنمية البشرية الذي نظمته جمعية رؤساء تحرير المجلات العلمية لشهر اكتوبر ٢٠٠٧. و العدد الحالي يمثل مساهمة *حوليات القدس الطبية* في هذا المشروع العالمي الذي شارك فيه نحو ٢٣٥ مجلة طبية من مختلف انحاء العالم. و هذا العدد من حوليات القدس الطبية فيه مساهمات ذات اهمية لفلسطين وخصوصا الضفة الغربية و قطاع غزة.

مقالات هذا العدد من *حوليات القدس الطبية* منها دراسة لفريد ابو العمرين و عبد الله الشريف عن تواجد الفيروس الدولابي عند اطفال غزة ودراسة لعبد المعطي الجاروشة عن التلوث في بحر غزة التي تعاني من نقص في خدمات التصريف الصحي. وأما عبود القيشاوي فقد نشر دراسة عن انتشار الأمراض الفطرية في القطاع بينما قدم شعبان مرتجى و سمير كحيل دراسة عن استخدام العلاج الأشعاعي في القطاع لعلاج بعض حالات الحساسية للأنف، بينما ساهمت انسام صوالحة بمقالة تعريف عن مهنة التمريض في فلسطين وقدم معين الكريري وباسل قنوع مقالة عن تغذية الأطفال بالرضاعة في قطاع غزة نشرت متأخرت في هذا العدد.

اما انا فقد اغتنمت فرصة زيارتي لعمان في الأردن سنة ٢٠٠٦ لزيارة مكاتب القسم الصحى لمنظمة الأونروا ومقابلة بعض المسؤليين العاملين هناك والأستفسار منهم عن خدمات الأونروا الصحية المتوفرة للفلسطينيين. انشأت *الأونروا* عام ١٩٤٩ بهدف تأمين الخدمات الصحية، العلمية و الاجتماعية للاجئين الفلسطينيين. و كنت انا ممن حصل على مساهمة مالية من *الأونروا* خلال فترة الدراسة المدرسية قبل الثانوية في بيروت-لبنان و التي كانت تدفع للمدرسة مباشرة. وبعد عدة سنوات من العيش في بريطانيا احببت ان اتابع نشاط *الأونروا*، فكانت زيارتي لمكاتب المنظمة في عمان. وقد قررت مشاركة القاريء بالعلومات التي حصلت عليها خلال المقابلات التي اجريتها، لا سيما عند ابلاغي بأن عدد العائلات في فلسطين المستفيدة من المساعدات الغذائية التي تقدمها *الأنروا* ارتفع من ١١٠٠٠ الى ٢٢٠٠٠٠خلال السنوات الستة الماضية.

واخيرا، فأن هذا العدد الخاص يحتوي على مقالاتان من ايران، خارج موضوع هذا العدد الخاص، عن داء البروسيلات في كردستان (مرادي و اخرون) و صلة الرياضة البدنية بالحد من امراض القلب الأقفاري في طهران (سليم زاده و اخرون).

والله ولي التوفيق.

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تغذية الأطفال في قطاع غزة مفاهيم وتوجهات وممارسات الأمهات.

الخلاصة:

هذه الدراسة الوصفية المستهدفة لأمهات مراجعات حضرن لتطعيم أطفالهن أو للمراجعة الدورية بمراكز الرعاية الأولية بوزارة الصحة والتي شملت ٢٦٨ أم هدفت لتمحيص السلوكيات والأنماط التغذوية للأطفال. لقد تم اختيار الأمهات لهذه الدراسة من خلال خمس عيادات حكومية تم تحديدها بشكل قصدي عبر ثلاث مناطق في قطاع غزة حيث تراوحت أعمار الأطفال بين ٢-٢٤ شهر.

لقد تم جمع بيانات تتعلق بسلوكيات التغذية للطفل الأصغر للعائلة من خلال أداة بيانات عبارة عن استبانة تم تصميمها خصيصاً لهذا الغرض.

لقد اتضح أن معدل شيوع ممارسة الرضاعة الطبيعية في هذه الدراسة هو ٩٢% بينما سجلت نسبة ممارسة الرضاعة الطبيعية المطلقة ٣٨%. لقد ذكرت٨٥% من الأمهات في هذه الدراسة أنهن تم تعريفهن بأهمية الرضاعة الطبيعية. لقد ظهر وجود بيئة داعمة للرضاعة الطبيعية خاصة في البيت وتحديداً من طرف الحموات بينما لم تزدد نسبة الدعم والتشجيع من خلال الأطباء والتمريض العاملين في أقسام الولادة على ٤٣%.
لقد كان المصدر الرئيسي للمعلومات هو من خلال مراكز الرعاية الأولية والتثقيف الصحي، أما الإعلام فلم يزد الدور الذي يلعبهً أكثر من٢٢%.

لقد أظهرت النتائج أيضاً أن ٤٦% من الأطفال استمروا في الرضاعة من أمهاتهم لما قبل العام الأول. وأن ١٣% من الأمهات لم يكن مهتمات بإرضاع أطفالهن حليب اللبا حيث فعلت بعضهن ذلك دون قناعة. لقد أدخلت نسبة ٢٦% من الأمهات الأغذية الصلبة لأطفالهن قبل الشهر الرابع.

أما عن نسبة الأمهات اللاتي لديهن اعتقادات خاطئة حول ضرورة التقديم المبكر للحليب الصناعي فكانت تقريباً ٧٠%. لقد ذكرن أن السبب وراء هذا الاعتقاد هو أن الطفل سيكون أكثر هدوءاً ً وأن نسبة الاصفرار بعد الولادة ستقل وكانت النتائج ٣٨% و٣٢,٥% على التوالي.

لقد ارتبط إدخال الأطعمة التكميلية مبكراً أو متأخراً إيجابا بمستوى المعرفة لدى الأمهات ومدة الإرضاع من الثدي.

د. معين أحمد الكريري
مدير دائرة التثقيف وتعزيز الصحة-
وزارة الصحة- غزة ،فلسطين.

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الجامعة الاسلامية-كلية العلوم-قسم الأحياء

الانتشار والتغيرات الموسمية للأمراض الفطرية بين سكان بعض مناطق قطاع غزة

المستخلص العربي

علي الرغم من أن الأمراض الفطرية شائعة بشكل واسع إلا أن هذه الدراسة هي الأولي من نوعها في غزة والتي تعتبر من أكثر مناطق العالم ازدحاما بالسكان وبالتالي فان احتمال انتشار الأمراض الفطرية فيها مرتفع .

في هذه الدراسة تم الحصول علي المعلومات من أرشيف وزارة الصحة وكذلك من خلال إستبانه وزعت علي مرضي الأقسام الجلدية في المستشفي الرئيسي في قطاع غزة (الشفاء)، وقد ضمت الاستبانة معلومات عن العمر، الجنس، مكان الإقامة، طبيعة المرض الفطري، ومكان الإصابة. باستخدام برنامج التحليل الإحصائي (ANOVA) تم المقارنة بين متوسطات انتشار الأنواع الفطرية المختلفة مابين الأعوام 1998 وحتى 2001م .

لقد ظهرت هذه الدراسة ان 32% من الأشخاص من كلا الجنسين يعانون من الإصابة بالأمراض الفطرية.

كما أظهرت الدراسة أن الجلد والرأس هي أكثر أجزاء الجسم إصابة 15.9% ،10.5% بالترتيب . أما من حيث الأنواع الفطرية الأكثر انتشارا فقد تبين أن *Tinea capitis* (23.3%) . أظهرت الدراسة أيضا أن هناك علاقة ذات دلالة إحصائية بين العمر والإصابة الفطرية (p=0.001). اختلافات ذات دلالة إحصائية ظهرت بين فصول السنة خصوصا بين متوسط الإصابة في الصيف والشتاء p=0.02 بالنسبة للسنوات 1998، 2000 و2001 .

خلاصة هذا العمل تبين أن الإصابة بالأمراض الفطرية ظاهرة شائعة بين مجتمعات قطاع غزة وان انتشار الأمراض حسب الفصول اظهر ان أكثر الإصابات كانت في فصل الصيف.

المراسلة:

د. عبود القيشاوى

كلية العلوم-قسم الأحياء

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النشاط البدني وحالة وزن الجسم فيما يتعلق بأمراض القلب الإقفارية.

حميده سليم زاده، حسن افتخار، ابراهيم قادري، مجتبي سالاري فر.

الملخص:

الخلفية:
إن الأمراض القلبية الوعائية، وخصوصا أمراض القلب الإقفارية، مسؤولة عن أكثر من 40% من الوفيات في جمهورية إيران الإسلامية ؛ وكما هو الحال في النصف الغربي من الكرة الأرضية ، يمثل الخمول البدني العامل الأكثر شيوعاً للإصابة بالأمراض القلبية الوعائية. تمثل هدف هذا البحث في تعيين الارتباط بين مناسب النشاط البدني (مناسب العمل، والترويح، والرياضة)، وقياسات وزن الجسم وبين خطر الإصابة بأمراض القلب الإقفارية في طهران، إيران.

المرضى وطرق البحث:
أجريت دراسة الحالات والشواهد هذه ما بين عامي2003 و 2004 في مركز طهران لأمراض القلب ومستشفى رجائي بطهران . تضمنت الدراسة عيّنة من 100 مرضى بأمراض القلب الإقفارية (الحالات) ، وعمل 100 من الأشخاص الأصحاء كشواهد. تمت مقابلة الشواهد بمرضى أمراض القلب الإقفارية حسب العمر (±5 سنوات)، والجنس. تم تسجيل المعلومات المتعلقة بالنشاط الطبيعي بواسطة استبيان "بيكي". وكذلك تم تسجيل بعض عوامل الاختطار المهمة مثل فرط ضغط الدم ، وفرط دهون الدّم، والداء السكّري، ومنسب كتلة الجسم. تم تحليل جميع البيانات إحصائيا بواسطة برنامج SPSS. إن جميع قيم الاحتمال (P) المبلغ عنها مستندة على تحليل ذي وجهين وتمت مقارنتها بمستوى الاعتداد 5 %.

النتائج:
كان لدى المرضى مناسب أقل بشكل ملحوظ بالنسبة للعمل والرياضة والأنشطة البدنية الترويحية (P<0.001). أظهر تحليل منسب كتلة الجسم وجود ارتباط معتد بين السمنة وخطر الإصابة بأمراض القلب الإقفارية (P=0.01). كان هناك ارتباط سلبي معتد بين منسب كتلة الجسم ومنسب الأنشطة البدنية الترويحية: فكلما ازداد منسب كتلة الجسم، انخفض احتمال المشاركة في الأنشطة البدنية الترويحية. بعد إجراء تحليل متعدد المتغيرات، وجد أن الأنشطة البدنية الترويحية (LTPA) تمتلك تأثيرا وقائيا مستقلا ضدّ خطر الإصابة بأمراض القلب الإقفارية، وكذلك كان الحال في مجموعة الحالات. زادت السمنة خطر الإصابة بأمراض القلب الإقفارية بأكثر من أربعة أضعاف تقريبا مقارنة بالأشخاص الطبيعيين.

الاستنتاج:
للنشاط البدني تأثير مفيد على خطر الإصابة بأمراض القلب الإقفارية وعلى عوامل الاختطار المرسّبة للإصابة بأمراض القلب الإقفارية.

الكلمات الدليلة:
أمراض القلب الإقفارية ، نمط الحياة، الأنشطة البدنية الترويحية ، الأمراض القلبية الوعائية، السمنة.

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الترجمة: د. ايهاب عبد الرحيم.

تأثير المتغيرات الموسمية البيئية على توزيع الميكروبات الدالة على وجود التلوث البرازي في مياة البحر لقطاع غزة.

عبد المعطي الجاروشه*.

الملخص:

تم اجراء مسح شامل للبكتيريا المستخدمة ككواشف للتلوث البرازي (مجموعة الكولي فورم الكلي، مجموعة الكولي فورم البرازي، مجموعة المكورات السبحية البرازية) في مياة شواطئ بحر قطاع خلال الفترة ما بين أكتوبر 2003 و سبتمبر 2004، أجريت الدراسة لتقييم مدى وجود التلوث البرازي في مياة البحر في مناطق مصبات المياة العادمة و مياة المجاري الغير معالجة. تعتبر هذه الدراسة ضرورية لعمل استراتيجية على المستوى القومي لوضع أسس عامة للتخفيف و معالجة الأضرار الناجمة عن هذه الظاهرة. أظهرت النتائج أن نسبة التلوث بمجموعة بكتيريا الكولي فورم كانت تتراوح ما بين 4800 إلى 15000 وحدة مكونة للمستعمرات لكل 100مل من مياة البحر، مجموعة الكولي فورم البرازي كانت تتراوح ما بين 2000 إلى 12000 وحدة مكونة للمستعمرات لكل 100مل من مياة البحر، أما مجموعة المكورات السبحية البرازية فكانت تتراوح ما بين 1100 إلى 6100 وحدة مكونة للمستعمرات لكل 100مل من مياة البحر. أثبتت الدراسة أن فصل الشتاء كان يحتوي على أعلى نسبة من التلوث، بينما فصل الصيف فكانت نتائجة أقل. كانت نسبة وجود مجموعة الكولي فورم البرازية إلى مجموعة المكورات البرازية السبحة بنسبة 1:2.

الكلمات المفتاحية: الكواشف البكتيرية للتلوث البرازي، مجموعة الكولي فورم الكلية، مجموعة الكولي فورم البرازية، مجموعة المكورات السبحية البرازية.

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تواجد فيروس الروتا (الفيروس الدولابي) عند الأطفال المصابين بالتهابات الأمعاء الحادة في غزة- فلسطين.

أ. فريد حسن أبو العمرين* , د. عبد الله عابد , أ.د. فضل الشريف

الملخص:

في غزة-فلسطين لا يزال الإسهال مشكلة صحية كبيرة فهي تأتي في المراتب الاولى بين الأمراض الأكثر حدوثا بعد أمراض الجهاز التنفسي والإسهال هو أحد المسببات الرئيسية للوفاة بين الأطفال تحت سن خمس سنوات ومن هنا تأتي أهمية دراسة مسببات الاسهال في فلسطين .

وفي قطاع غزة لم يتم إجراء دراسة فيروس الروتا خلال السنوات العشر الاخيرة ولا توجد بيانات صحيحة حول مدى انتشاره بين الأطفال لهذا كان الاهتمام الأكبر في هذه الدراسة مركزا على مدى تواجد هذا الفيروس. تم جمع 150عينة من عينات براز أطفال يعانون من الاسهال ادخلوا الى المستشفى المركزي للاطفال في قطاع غزة (مستشفى النصر للاطفال) وكانت اعمارهم اقل من خمس سنوات جمعت جميع العينات في فترة الصيف لعام 2005م وجد أن فيروس الروتا هو المسبب الرئيسي للإسهال في الأطفال تحت سن خمس سنوات حيث شكل 28% من مجموع الحالات. و يتميز الإسهال في هذه الحالة بأنه مائي 95.2% ، و غالبا يكون مصحوبا بارتفاع في درجة الحرارة 73.3% و قيء 92.9% وقد يؤدي في كثير من الحالات الى الجفاف في حوالي 14.3% من الحالات ويعتبر الأخير من أخطر مضاعفات الإسهال، و لذا حين يصاب الطفل بالإسهال يجب ويتطلب العناية في المستشفى مما يزيد من أهميته الطبي ومتابعة حالته لملاحظة أي بوادر للجفاف قد تظهر عليه. ووجد أن المضادات الحيوية تستخدم بكثرة في علاج حالات الإسهال بالرغم من أن منظمة الصحة العالمية تنصح بعدم استخدامها لأنها غير مفيدة في مثل هذه الحالات ولها أضرار جانبية عديدة مثل اكتساب بعض انواع البكتيريا المقاومة للمضادات الحيوية . وجد أيضا أن الأطفال الذين أعمارهم اقل من سنتين هم اكثر عرضه للإصابة بالفيروس من الأطفال الأكبر عمرا و إن عزل الفيروس من حالات الإسهال التي تحتاج إلى الرعاية الصحية في المستشفى مهم جدا وذلك لانه من اهم مسببات الاسهال المعدية داخل المستشفى

(Nosocomial infection) حيث يجب تشخيص المرض في سرعة ودقة وذلك لعزل الطفل المصاب عن الأطفال الاخرين.

لذلك يجب توفر فحص سريع لتشخيص الفيروس في عينة البراز كما يجب استخدام لقاح ضد الفيروس للحد من انتشاره كما و يجب تحسين الوضع الصحي عن طريق توفير المياه الصالحة للشرب ، تحسين نظام الصرف الصحي ، تحسين النظافة الشخصية والتثقيف الصحي ، والحث على استمرار الرضاعة الطبيعية لمدة سنة على الأقل و يجب البحث عن المسببات الأخرى للإسهال وعدم إعطاء علاج قبل تشخيص الحالة وعدم استخدام المضادات الحيوية إلا بوصفات طبية.

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داء البروسيلات في محافظة كردستان ما بين عامي 1997 و 2003.

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الملخّص:

المقدمة: لداء البروسيلات ، وهو أحد الأمراض الحيوانية المصدر، أهمية كبرى فيما يتعلق بالصحة العامة وبتأثيره على الحالة الاقتصادية الاجتماعية في جميع أنحاء العالم، وخصوصا في الدول النامية. يقوم هذا المسح بتحليل الحالة الوبائية لداء البروسيلات في محافظة كردستان.

المواد وطرق البحث: هذا البحث هو دراسة وصفية تحليلية تم فيها تقييم 3880 من حالات داء البروسيلات ما بين عامي 1997 و 2003. اعتبرنا أن عيار 1:180 أو أكثر، باستخدام طريقة التراص الأنبوبي القياسية، يمثل نتيجة إيجابية. تم تجميع هذه البيانات من مختبرات المحافظة بصفة أسبوعية. تم تحليل بيانات المرضى ووصفها باستخدام البرامج الإحصائي SPSS.

النتائج: تمت دراسة ثلاثة آلاف وثمانين من حالات العدوى بداء البروسيلات . في هذه الدراسة كان 2020 (52.1 %) ذكورا، و1860 (47.9 %) من الإناث،و 707 (18.2 %) من سكان المدن، و3173 (81.8 %) من سكان الريف. ظهر المعدل الأعلى للوقوع، مع حدوث 89 حالة عدوى لكل 100000 من السكان، في عام 2003 ؛ والأقل ، مع حدوث 17 حالة عدوى لكل 100000 من السكان، في عام 2000. ظهر المعدل الأعلى للوقوع بين ربّات البيوت ، بنسبة 39.4 %. كانت هناك علاقة بين الجنس من ناحية، وبين كل من العمر ($p<0.001$)، ومكان المعيشة ($p<0.05$).

الاستنتاج: وفقا لهذه الدراسة، كان الذكور الذين يعيشون في القرى والبنائين في المدن هم المجموعات الأكثر تأثرا. إن تدريب الناس ، وخصوصا القرويين والنساء اللاتي يعشن في المدن، حول طرق انتقال المرض ،وطرق الوقاية، ومراقبة إمدادات وإيتاء الأطعمة ، من الممكن أن تقلل من انتشار المرض.

الكلمات الدليلة: داء البروسيلات ؛ علم الأوبئة.

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العلاج الإشعاعي لحسّاسية الأنف الغير متجاوبَة إلى العلاج الدوائي في قطاع غزة – فلسطين.

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الملخّص:

ما زالت المعالجة المثالية لحسّاسة الأنف و التي لاستجيب إلى العلاج الدوائي غير متوفرة. إنّ هدفَ الدراسةِ تقييمَ كفاءةَ الجراحةِ بالأشعة لحسّاسية الأنف الغير متجاوبَة إلى العلاج الدوائي. عشرون مريضا عولجوا وتوبعوا لفترتين، 6 شهور و12 شهر. النَتائِج: لا أحد من المرضى الـ20 كَانَ عِنْدَهُمْ مضايقةٌ واضحةٌ، لا مضاعفات جانبية بضمن ذلك النزف، عدوى، التصاق، ولا تدهور لأعراض الحسّاسةِ. الرشح الأنفي تحُسّنَ بعد 6 شهور بين 14 (70 %) (p value 0.03) منْ الحالاتِ ونزل العدد إلى 11 (55 %) (p value 0.045) بعد 12 شهر. تحُسّنْ الانسداد الأنفي بعد 6 شهور ب 17 (85 %) (p value 0.001) حالة ونزل العدد إلى 16 (80 %) (p value 0.0016) بعد 12 شهر. الأعراض الأخرى بضمن ذلك حَكّ أنفي، عَطْس، شَخير، صداع، حكة في العين أيضاً فقدان حاسة الشّم اظهرت تحسينًا مثيراً. الخلاصة: يَبْدو العلاج الإشعاعي أداةَ فعّالة وآمنة للمُعَالجَة لحسّاسية الأنف الغير متجاوبَة إلى العلاج الدوائي. في المستقبل، العلاج الإشعاعي لها الإمكانيةُ لِكي تَكُونَ إحدى الخيارات الجراحيةِ الأكثر شيوعاً وتُساعدَ على معالجة حسّاسية الأنف.

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التدخين السلبي والتعلم: تعرض الاطفال مرتبط بالتأثيرات الادراكية.

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لقد ربطت الدراسات السابقة التعرّض إلى التبغ البيئي أو ما يسمى بالتدخين السلبي بالأداء الأقل على إختبارات الإستخبارات (الذكاء)، و تفكّر القدرة، وتطوير اللغة، بالإضافة إلى الخطر الأعلى لاحتفاظ الدرجة، ويقترح بأنّ مثل هذا التعرّض قد يسبّب نقائص في الإدراك. التأثيرات المضادّة الأخرى التي إرتبطت بتعرّض التدخين السلبي تتضمّن إصابات الأذن الوسطى، وأعراض موت الجنين المفاجئة، وتفاقم الربو. تشير النتائج الجديدة الآن إلى أن التعرّض ولو لمستويات منخفضة جدًا إلى التدخين السلبي قد يكون مسممًا للأعصاب، وذلك حسب تقرير فريق تحت قيادة Kimberly Yolton لجامعة Cincinnati كليّة الطبّ، والمركز الطبي في مستشفى أطفال Cincinnati [***EHP* 113:98–103**]. في الحقيقة، بالرغم من أن دراسة العلاقة بين الجرعة ومدى الاستجابة لها تمت على مستويات مختلفة من التعرض للتدخين السلبي، تبين بشكل واضح أن النقائص (التأثير السلبي) حدثت عموما عندما كان مستوى التعرّض للتدخين السلبي منخفضاً، وتم ملاحظة هذه الظاهرة أيضًا عند التعرض للرصاص.

من الواضح أنّ الدراسة الحالية هي الأكبر من نوعها، حيث شملت 4,399 طفلاً بعمر يتراوح بين 6-16 عامًا، وهم الذين شاركوا في مسح الصحة وفحص التغذية الوطني الثالث الذي تم من عام 1988إلى عام 1994. وهو أيضا الأول الذي اعتمد فقط على علامة حيوية من التعرّض - مصل cotinine- بدلا من الاعتماد على البيانات الناتجة عن المقابلات أو الإستفتاءات. "إن تقارير التعرّض للتدخين السلبي معقّدة بالإستدعاء السيّئ، وعدم الانتباه إلى التفاصيل الحاسمة مثل تعديل كمية الدخان التي يتم التعرض إليها، وقرب الطفل من المدخّن، وتهوية الغرفة، وعوامل أخرى قد تؤثر في صلاحية قياس التعرّض" كما كتب المؤلفون.

علاوة على ذلك، يميل الناس إلى التقليل من الإعلان عن التدخين، الذي يظهر على نحو متزايد بأنه سلوك غير مرغوب فيه إجتماعيًا. عند المشاركة في مسح الصحة وفحص التغذية الوطنية الثالث، تم سحب عينات دم من الأطفال، وأخذت القراءة والمجموعات الرياضية الثانوية للمدى العريض الإنجاز للإختبار – تم مراجعته، وتصميم الكتلة، والمدى الرقمي للمجموعات الجزئية لمقياسWechsler لمستوى الذكاء للأطفال الثالث (السابقة مجموعة إجراءات إختبار Wechsler الثانوية تقيس قدرات بناء البصرية، والاخيرة قصيرة الأمد وتقيس الذاكرة العاملة). للتحليلات الحالية، تم استثناء أطفال من العيّنة إذا ذكروا إستعمال منتجات التبغ خلال الخمسة أيام للإختبار الإدراكي وجمع الدمّ، أو إذا كان تركيز مصلهم cotinine يشير إلي إلى أنه من المحتمل أنهم كانوا مدخنين نشيطين.

قاس Yolton وزملاؤه تراكيز مصل cotinine في العينات، وربطت البيانات بنتائج إختبار الأطفال. أظهرت النتائج بأنّ الأطفال الذين تعرّضوا إلى التدخين السلبي كانت نقاطهم (علاماتهم) منخفضة باعتدال إلى كبيرة على إختبارات الرياضيات، والقراءة، ومهارات بناء البصرية visuospatial بالمقارنة مع الأطفال الذين إفتقروا إلى مثل هذا التعرّض، لكن تبين أنه لا نقائص في الذاكرة. "مدى التناقص في النقاط تقريبا مكافئ جدًا إلى خسارة إثنتان إلى خمس نقاط من معامل الذكاء، ويعتمد ذلك على التفاوت في مستويات التعرّض" كما قال Yolton. يخمّن المؤلفون بأن أكثر من 21.9 مليون طفل أمريكي في الخطر المتعلّق بوجود عيوب أو نقائص في القراءة ذات علاقة بالتدخين السلبي.

يوجد محددات لهذه الدراسة وهي عدم وجود قياسات خاصة بالقدرات الإدراكية الأبوية ونوعية بيئة البيت. أيضا، من غير الواضح فيما إذا كانت مستويات مصل cotinine قد أخذت فقط مرّة واحدة لكلّ حالة، وهل مثّلت مستويات مزمنة أو حادّة. على أية حال، أظهرت دراسات أخرى بأن تراكيز مصل cotinine كانت مستقرّة في كلا المدخنين وغير المدخنين. وبالرغم من أن أبحاث أخرى مطلوبة لتأكيد هذه النتائج، يقول المؤلفون بأن هذا التحليل يؤكد السياسة المساندة لتخفيض تعرّض الطفولة إلى التدخين السلبي.

المصدر:

David C. Holzman (2005) ETS and Learning: Children’s Exposure Linked to Cognitive Effects. Environmental Health Perspectives, 113 (1): A50-A51.

Editorial

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Annals of Alquds Medicine, Editor's office.

بسم الله الرحمن الرحيم

The 'Nakba' of 1948 saw a great calamity affect the Palestinian people resulting in occupation of their country, forced exodus from their homes and homeland and inflicted great loss of wealth. To date many Palestinians still live as refugees in various countries and still experience serious poverty, even after the establishment of relief agencies such as *United Nations Relief and Works Agency* (UNRWA), meant to provide basic services to Palestinians who live Palestine, Jordan, Syria and Lebanon within or outside refugee camps.

In an effort to help focus on such issues, *Annals of Alquds Medicine (AQM)* participated in the *Global Theme Issue on Poverty and Human Development*, which was planned by the *Council of Science Editors* for October 2007. The current issue presents in part AQM's participation in the special theme issue and contains research articles mostly of relevance to Palestine's Gaza strip and West. The issue also investigated health care services provided to Palestinians through the UNRWA.

Abu El Amreen *et al* presented an article on rotavirus infection in infants and children in Gaza, whilst Dr. El Jarousha discussed variations in faecal pollutants in the sea water of Gaza, an important topic since the Gaza strip suffers from environmental pollutants due to lack of proper amenities for waste disposal. El Kichaoi discussed fungal infections in the densely populated Gaza strip. Mourtaga and Kuhail presented their use of radiofrequency to treat allergic rhinitis in Gaza. Finally, Dr. Sawalha discussed the current status of the nursing profession in the west bank and highlighted weaknesses and current needs to strengthen the Palestinian nursing practice.

I took the opportunity of visiting Amman-Jordan in 2007 to meet with healthcare officials working for UNRWA and discuss with them services which UNRWA offers for Palestinian refugees. UNRWA was established by the UN in 1949 to provide basic essential services to Palestinian refugees such as education, healthcare and welfare. I myself used UNRWA educational and healthcare services as a school boy in Beirut-Lebanon. It was interesting to me to re-visit this organisation after several years of living in Britain and learn that in the past six years the number of Palestinian families claiming food in Gaza and West Bank (worth $136 per annum) rose from 11,000 to 220,000. I decided to share this with AQM's readers in this special theme issue.

Finally, two articles from Iran discussed Brucellosis and Ischemic Heart Disease (IHD) in the province of Kurdistan and Tehran, respectively. Moradi *et al* surveyed the epidemiology of Brucellosis in Kurdistan between 1997 and 2003. Salimzadeh *et al* related physical activity and body weight status to the incidence of IHD in Tehran.

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ORIGINAL ARTICLE

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Rotavirus Infection in Infants and Young Children with Acute Gastroenteritis in Gaza, Palestine.

ABSTRACT

To detect rotavirus antigen in infants and young children with acute diarrhea and gastroenteritis. Rotavirus is a major cause of gastroenteritis and diarrhea in infants and young children worldwide.

Method: Fecal samples from 150 children with ages ranging from 1 month to 5 years, living in Gaza, who presented with acute diarrhea episodes, were analyzed for rotavirus antigen. The analysis was carried out using an immunochromatography-based diagnostic kit (The RotaStick One-Step test, Novamed Ltd, Jerusalem). The study was conducted during the peak diarrheal season (May-August) of the year 2005.

Results: Rotavirus was detected in 28 % (42/150) of the fecal specimens examined, and the majority of patients 90% (38/42), who were positive for the virus were 1 to 24 months old, and the infection rate decreased with increasing age. The highest rate of rotavirus antigen detection was observed among the 12 to 24 months age group 41.9%. Children infected with rotavirus were more likely to have watery stool (95.2%), vomiting (92.9%), moderate dehydration (14.3%) and fever has low frequency (73.8%).

Conclusions: The findings of this study demonstrate that rotavirus is one of the most frequently detected, yet a routinely neglected pathogen during stool examinations in Gaza strip health laboratories. Timely diagnosis of rotavirus infection in patients with acute diarrhea helps to determine appropriate treatment, prevents the unnecessary use of antibiotics and minimizes the spread of the disease. To our knowledge, this is the first report on occurrence of rotavirus infection among children of Gaza since 1994.

Keywords: Rotavirus, Gastroenteritis, Gaza, Palestine.

INTRODUCTION

Acute gastroenteritis is one of the leading causes of illnesses and death in infancy and childhood throughout the world, especially in developing countries. In Asia, Africa and Latin America an estimated 1.3 billion diarrhea episodes and 4 to 10 million deaths occur each year in children less than 5 years of age (1,2,3). Viral pathogens account for approximately 70% of episodes of acute infectious diarrhea in children, and rotavirus is the most commonly implicated agent (4,5,6). World wide, group-A rotaviruses are responsible for 30–60% of all cases of severe watery diarrhea in young children (7). Each year, rotavirus causes approximately 111 million episodes of gastroenteritis requiring only home care, 25 million clinic visits, 2 million hospitalizations, and 352,000–592,000 deaths (median, 440,000 deaths) or approximately 2,000 children each day in children <5 years of age. This accounts for about one quarter of the deaths from diarrhea and about 5% of all deaths among children less than five years of age. Children in the poorest countries account for 82% of rotavirus deaths (3). Timely diagnosis of rotavirus infection in patients with acute diarrhea helps determine appropriate treatment, prevents the unnecessary use of antibiotics and minimizes the spread of the disease (8,9). In Palestine, diarrhea is one of the major causes of many outpatient visits, and hospitalizations. The identification and diagnosis of diarrhea in Palestinian health laboratories is done only for *Salmonella* and *Shigella* species, and the parasites, e.g., *Entamoeba* and *Giardia* are diagnosed by direct microscopic examination. The rotavirus however, is not diagnosed. Moreover, there has been no reported studies regarding this virus since 1994 (10-14).

MATERIALS AND METHODS

Study population

During the peak of diarrheal season (May-August of 2005), 150 of the children up to 5 years of age who were admitted with acute diarrheal diseases to ElNasser Pediatric Hospital Gaza (the central pediatric hospital in Gaza strip), were enrolled in the study.

Sample collection

Fecal samples (one per each subject), from children with diarrhea were collected as soon as the children were admitted to the hospital by the help of their parents. Each stool specimen was collected in a special container, kept at 4°C, and processed within 3 hours of collection. Blood samples collected (2 ml) in heparinized tube or syringe were transported immediately on ice to the laboratory for pH measurement.

Ethical Considerations

An authorization to carry out the study was obtained from the Helsinki committee (Declaration of Helsinki the most widely accepted guideline on medical research involving human subjects) using an agreement letter prepared from The Islamic university of Gaza. Parents gave their consent for participation in the study and all the information that were obtained about the subjects as well as their parents were kept confidential.

Laboratory Investigations

Rotavirus detection

Stool samples were analyzed for group A rotavirus using RotaStick one step test kit for determination of rotavirus in human feces (Novamed ltd., Jerusalem) following the manufacturer's instructions. Immunochromatography-based methods are reliable and the fastest and easiest to perform and have the sensitivity, the specificity as well as ELISA and other methods and have found a wide use in detection of the rotavirus (15,16).

Blood pH determination

Blood pH was determined by the Blood Gas Analyzers-Radiometer ABL 5 (Diamond Diagnostics USA), the sample was processed according to the manufacture's instructions.

Data Analysis

The data was entered, sorted and analyzed by a personal computer using SPSS 8.0 statistical package, differences in proportions were assessed by a chi-square test, P values <0.05 were considered statistically significant.

RESULTS

The study focused on detection of rotavirus antigen in 150 children less than 5 years of age in Gaza, Palestine. The results of the study can be summarized as follows:

The children enrolled in the study were divided

into five age groups as illustrated in Table 1.
A clear higher incidence of diarrhea in the 0 to 2 years old subjects was observed. Infants below 12 months of age were particularly affected, accounting for 95 cases (63.3%), followed by 31 cases (20.7%) in the age group 13-24 months, Table 1. Rotavirus was detected in 28 % (42/150) of all the fecal specimens examined (Table 1), and the majority of patients who were positive for the virus, 90% (38/42), were 0 to 24 months old, and the infection rate decreased with increasing age. Most of rotavirus-positive cases 25/42 (59.5%) were in the age group 0-12, followed by 13/42 (31.0%) in the age group 13-24 (Table 1). Moreover the highest rate of rotavirus antigen detection was observed among the 13 to 24 months age group since 13 out of the 31 diarrhea cases (i.e., 41.9%) examined in this age group were positive for rotavirus, followed by the age group 0-12 month (26.3%) and it decreased over age.

Table 1: Distribution of rotavirus infection detected in 0 to 60 months old children with acute diarrhea.

Age	Rotavirus Antigen				
	No of patient examined	Positive		Negative	
		No	%	No	%
0-12 months	95	25	26.3	70	73.7
13-24 months	31	13	41.9	18	58.1
25-36 months	8	2	25.0	6	75.0
37-48 months	7	1	14.3	6	85.7
49-60 months	9	1	11.1	8	88.9
Total	150	42	28	108	72.0

Clinically; children infected with rotavirus were more likely to have watery stool (95.2%) with statistical significance (P value < 0.05), vomiting (92.9%), fever is less frequency (73.8%) and moderate dehydration (14.3%), Table 2.

Table 2: Clinical presentation of children with and without rotavirus among the cases.

Clinical presentation	Number and percentage of samples				
	Rotavirus positive (n=42)	%	Rotavirus negative (n=108)	%	P-value
Vomiting	39	92.9%	92	85.2%	0.205
Fever	31	73.8%	87	80.6%	0.365
Dehydration	6	14.3%	11	10.2%	0.477
Watery Stool	40	95.2	89	82.4	**0.042**

Metabolic acidosis was significantly more frequent in rotavirus-positive cases (35.7%), while metabolic alkalosis was less common (2.4 %), Table 3.

Table 3: Blood pH and rotavirus

Condition	Number and percentage of samples				
	Rotavirus positive (n=42)	%	Rotavirus negative (n=108)	%	P-value
Metabolic acidosis	15/42	35.7%	15/108	13.9%	**0.002**
Metabolic Alkalosis	1/42	2.4	17/108	15.7	**0.002**

Slightly more males (89/150) were admitted to the hospital due to diarrhea than females (61/150). The ratio of rotavirus infection, however, was 1.2 higher in the female subjects, (19/61 of the females and 23/89 of the males) Table 4.

Table 4: Rotavirus detection from stool samples in relation to the gender

Variable	Gender		Total
	Female	Male	
Rotavirus Negative	42	66	108
Rotavirus Positive	19	23	42
Total	61	89	150

Most of the children 59.3% (89 of 150) who had diarrhea and were admitted to the hospital came from the Gaza region, 38.0 % (57 of 150) were from the Northern Gaza strip and the rest was from Mid zone and the Southern Gaza strip. The highest rate of rotavirus antigen detection (36.0%) was observed among the Gaza region group Table 5.

Table 5: Rotavirus-positive and negative cases with respect to residence area.

Residence area	Number and percentage of samples				
	Rotavirus positive (n=42)	% of the total	Rotavirus negative (n=108)	% of the total	Total
North Gaza	9	6.0%	48	32.0%	57
Gaza region	32	21.3%	57	38.0%	89
South & mid zone Gaza	1	0.7%	3	2.0%	4
Total	42	28.0%	108	72%	150

P: value 0.030

DISCUSSION

Diarrhea remains one of the most common illnesses of children and one of the major causes of infant and childhood mortality in developing countries. Considering the usually scanty resources available in the third world countries, a reduction in diarrhea-related mortality may be possible by identifying high risk subjects and targeting them for intensive intervention. In the present study, we focused on rotavirus as an important etiologic agent of childhood diarrhea. Rotavirus was detected in 28 % (42/150) of the fecal specimens collected from children of < 5 years of age with acute diarrhea, using an immunochromatographic assay. When compared to other studies the percentage of rotavirus-positive specimen of our study is lower than that reported by many investigators such as the 32.5% of Youssef et al. (2000) in Jordan, the 34.6% of El-Sheikh and El-Assouli (2001) in Saudi Arabia, and the 45.0% of Nguyen et al. (2005) in Vietnam (2,17,18). On the other hand, our percentage is higher than that reported by many other authors; 6.8% by Sallon et al (1994) in Gaza, Palestine, 8.8% by Yoshida et al. (1998) in Japan, 11.9% Rohner et al., (1997) in Switzerland, 14% by Dagan et al. (1990) in Southern Israel, 15.3% by Modarres et al (1995) in Iran, 19.2% by Orlandi et al. (2001) in Brazil, and 19.6% by Ballal and Shivananda (2002) in India (14,19-24). Meanwhile, our finding is nearly congruent with that Battikhi (2002) in Jordan and Ali et al. (2005) in Zliten, Libya, where they reported that 26.6% of their samples had rotavirus infection, 28.6% by Pazzaglia et al. (1993) in Alexandria, Egypt, and 27% by Buser, et al. (2001) in Switzerland (10,25-27). The low or high rates of rotavirus infections presented by different investigators can be explained by several factors including, the study population, the incidence rate of the virus in different environments, the living conditions and standards of the study group, and the season on

which the study was conducted. Out of the 150 diarrheal patients enrolled in the study, 64.0% were less than 1 year of age, and 84.0% were less than 2 years of age. This shows a strong tendency of diarrhea to occur among children less than 2 years of age. This finding is consistent with other studies conducted in the middle east countries and other various developing countries, (2,17,18) where the major burden of diseases due to rotavirus occurs in the first and second year of life. The children enrolled in this study were divided into five age groups, 90% of all the cases of rotavirus occurred in children ≤ 2 years of age, which is in agreement with many other studies done in most parts of the world and which showed why these age groups represent the highest morbidity and mortality from rotavirus diarrhea. The prevalence of rotavirus infection in this age group emphasizes the importance of rotavirus vaccines, which have been undergoing field trials for several years (4,28). Moreover, our study indicated that there was a trend of decreasing rates of rotavirus infection in the older children. This might partly be explained by the fact that older children acquired protective immunity during previous, probably subclinical, exposures to rotavirus and therefore become more resistant to infection with this agent (29). A total of 89 (59.3%) male and 61 (40.7%) female cases of acute diarrhea were examined in this study Table 4. Slightly more males were admitted to the hospital due to diarrhea, Rotavirus prevalence was higher in female cases 19 of 61 (31.1%) than in males 23 of 89 (25.8%), no reasonable explanation has yet been given for this distribution but it is possible that the cultural or behavioral norms in our study area are contributing factors. For example it is a common practice in many families of preferentially seeking medical care for boys. It is not possible to distinguish diarrhea caused by rotavirus clinically, because diarrhea, vomiting, fever, and dehydration are not absolutely associated with rotavirus infection, through, and as reported by the current study, some clinical symptoms are more common in rotavirus infection such as vomiting, dehydration and metabolic acidosis (2,30-32). Most of the patients (89/150 ; 59.3%) admitted with acute gastroenteritis were from the Gaza region, 38.0% (57/150) were from Northern Gaza Strip, and 2.7% (4/150) were from Mid zone and Southern Gaza Strip. It is important to note that there is no pediatric hospital in Northern Gaza Strip. The low number of cases admitted from the Mid zone and Southern Gaza Strip is due to the continuous closures and separation of Gaza from the southern area by the Israeli occupation, and the presence of some hospitals in that area. The present study revealed that rotavirus was the microorganism associated most frequently (36.0%) with gastroenteritis in Gaza region, (15.8%) found in Northern Gaza Strip. Many authors have shown that rotavirus infection is more common in urban area as compared to rural areas. The reason of increased rotavirus prevalence in Gaza city can be due to nosocomial infections in neonatal nurseries, particularly more common in the urban area than the rural one, and the management of rotavirus infection is difficult (3,21). The incidence of rotavirus disease was observed to be similar in both industrialized and developing countries, suggesting that adequate control may not be achieved by improvements in water supply, hygiene, and sanitation. Consequently, the development, trial, and widespread use of rotavirus vaccines is highly recommended in order to prevent severe and fatal rotavirus disease (3). No specific treatment of viral infection is available nor it is really required. The severe symptoms and fatal outcome from rotavirus diarrhea are due to dehydration, the acute loss of fluid and electrolytes. This can be treated with rehydration therapy, ie. replenishing the fluids and electrolytes that have been lost. For children who are not severely dehydrated, oral rehydration solution is the treatment of choice whereas for children who are severely dehydrated, in shock, and are unable to drink, intravenous therapy can be lifesaving. Antibiotics are not required and are contraindicated, use of antimicrobials adds to the cost of treatment, risks adverse reactions and enhances the development of resistant bacteria (8,9). Timely diagnosis of rotavirus infection in patients with acute diarrhea helps determine appropriate treatment, prevents the unnecessary use of antibiotics and minimizes the spread of the disease. It is worth noting here that the detection of rotavirus in stool specimen by the employed method requires only 30 minutes to perform.

CONCLUSION AND RECOMMENDATION

Rotavirus vaccines is highly recommended in order to prevent severe and fatal rotavirus disease and to detect rotavirus antigen in stool specimen as soon as possible to determine appropriate treatment, prevents the unnecessary use of antibiotics and minimizes the spread of the

disease. Based on the preliminary data presented by this study, further work is needed in order to provide a broader picture of the burden of rotavirus in children less than 5 years old all over Gaza strip.

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REFERENCES

1. Guerrant RL, Hughes JM, Lima NL, Crane J. (1990). Diarrhea in developed and developing countries: magnitude, special settings, and etiologies. Rev. Infect. Dis. 12 (Suppl. 1):S41-S50.
2. Nguyen TV, LeVan P, LeHuy C, Weintraub A. (2004) Diarrhea caused by rotavirus in children less than 5 years of age in Hanoi, Vietnam. J Clin Microbiol. 42(12):5745-50
3. Parashar UD, Hummelman EG, Bresee JS, Miller MA, Roger IG. (2003). Global Illness and Deaths Caused by Rotavirus Disease in Children Emerging Infectious Diseases.,5:565-572.
4. Barnes GL, Uren E, Stevens KB, Bishop RF. 1998. Etiology of acute gastroenteritis in hospitalized children in Melbourne, Australia, from April 1980 to March 1993. J. Clin. Microbiol. 36:133–138..
5. Baron EJ, Peterson LR, Finegold SM. 9th ed. (1994). Diagnostic Microbiology.Mosby Year Book. USA.
6. Pickering LK. (1997). Approach to diagnosis and management of gastrointestinal tract infections. In: Long S, Pickering LK, editors, Principles and Practice of Pediatric Infectious Diseases. New York, Churchill Livingstone, p 410-418.
7. Blachlow NR, Greenberg HB: Review article: (1991). viral gastroenteritis. New England Journal of Medicine 325:252–264.
8. Mary LC, Howard C.(1999). "Viruses Causing Gastroenteritis." Manual of Clinical Microbiology. 5th edition. American Society for Microbiology, pp. 950-958.
9. Doymaz MZ. (2000). Medical Virology, Istanbul, Nobel Press, pp 522-530.
10. Awad R, Abu Arquob O. (2001). The status of health in Palestine: HMIS-MOH..
11. Palestinian Ministry Of Health Laboratory annual Reports 2003, 2004.(2004). Ministry of health Palestine.
12. Sallon S, El-Shawwa R, Khalil M, Ginsburg G, El Tayib J, El-Eila J, Green V, Hart CA (1994). Diarrhoeal disease in children in Gaza. Ann Trop Med Parasitol. 88(2):175-82.
13. Simhon A, Abed Y, Schoub B, Lasch EE, Morag A. (1990) Rotavirus infection and rotavirus serum antibody in a cohort of children from Gaza observed from birth to the age of one year. Int J Epidemiol. 19(1):160-3.
14. Abu Mourad T.A. (2004). Palestinian refugee conditions associated with intestinal parasites and diarrhoea: Nuseirat refugee camp as a case study. Public Health 118: 131–142.
15. Buser J, Risch L, Rutz T, Manang S, Munzinger J. (2001). Comparison of rota virus latex agglutination test with two rapid immuno chromatographic test devices for detection of rotavirus in human feces. Eur J Clin Microbiol Infect Dis. 20: 295-296.
16. Mary JRG et al. (1987). "Comparison of seven kits for the detection of rotavirus in fecal specimens with a sensitive, specific immunoassay." Diagn. Microbiol. Infect. Dis. 8: 221-228.
17. El-Sheikh SM, El-Assouli SM. (2001). Prevalence of viral, bacterial and parasitic enteropathogens among young children with acute diarrhoea in Jeddah, Saudi Arabia. J Health Popul Nutr. 19(1):25-30.
18. Youssef M, Shurman A, Bougnoux M, Rawashdeh M, Bretagne S, Strockbine N. (2000). Bacterial, viral and parasitic enteric pathogens associated with acute

diarrhea in hospitalized children from northern Jordan. FEMS Immunol Med Microbiol. 28(3):257-63.

19. Ballal M, Shivananda PG. (2002). Rotavirus and enteric pathogens in infantile diarrhoea in Manipal, South India. Indian J Pediatr. (5):393-6

20. Dagan R, Bar-David Y, Sarov B, Katz M, Kassis I, Greenberg D, Glass RI, Margolis CZ, Sarov I. (1990). Rotavirus diarrhea in Jewish and Bedouin children in the Negev region of Israel: epidemiology, clinical aspects and possible role of malnutrition in severity of illness. Pediatr Infect Dis J. 9(5):314.

21. Orlandi PP, Silva T, Magalhaes GF, Alves F, de Almeida Cunha RP, Durlacher R, da Silva LH. (2001). Enteropathogens associated with diarrheal disease in infants of poor urban areas of Porto Velho, Rondonia: a preliminary study. Mem Inst Oswaldo Cruz. 96(5):621-5.

22. Rohner P, Pittet D, Pepey B, Nije-Kinge T, Auckenthaler R. (1997). Etiological agents of infectious diarrhea: implications for requests for microbial culture. J Clin Microbiol. 35(6):1427-32.

23. Modarres S, Modarres S, Oskoii NN. (1995). Rotavirus infection in infants and young children with acute gastroenteritis in the Islamic Republic of Iran Eastern Mediterranean Health 1(2): 210-214.

24. Yoshida I, Hayashi Y, Katayama K, Yamada S. (1998). Bacteriological and virological studies on the cause of sporadic acute gastroenteritis in Tama, Tokyo (1991-1996) Kansenshogaku Zasshi. 72(6):599-608.

25. Ali MB, Ghenghesh KS, Aissa RB, Abuhelfaia A, Dufani M. (2005). Etiology of childhood diarrhea in Zliten, Libya. Saudi Med J. 26(11):1759-65.

26. Battikhi MN. (2004). Bloody diarrhoea cases caused by Shigella and amoeba in Jordan. New Microbiol. 27(1):37-47.

27. Pazzaglia G, Bourgeois AL, Araby I, Mikhail I, Podgore JK, Mourad A, Riad S, Gaffar T, Ramadan AM. (1993). Campylobacter-associated diarrhoea in Egyptian infants: epidemiology and clinical manifestations of disease and high frequency of concomitant infections. J Diarrhoeal Dis Res. 11(1):6-13.

28. Ford-Jones EL, Wang E, Petric M, Corey P, Moineddin R, Fearon M et al. (2000). Hospitalization for community-acquired, rotavirus-associated diarrhea: a prospective, longitudinal, population-based study during the seasonal outbreak. Arch. Pediatr. Adolesc. Med. 154:578–585

29. Jiang B, Gentsch JR, Glass RI. (2002). The role of serum antibodies in the protection against rotavirus disease: an overview. Clin. Infect. Dis. 34: 1351–1361.

30. Cascio A, Vizzi E, Alaimo C, Arista S. (2001). Rotavirus gastroenteritis in Italian children: can severity of symptoms be related to the infecting virus. Clin. Infect. Dis. 32:1126-1132.

31. Cuestas ME, Appendino CJ, Valle TM. (2005). Rotavirus diarrhea in a population covered by private health insurance in Cordoba, Argentina. An Pediatr (Barc). 63(4):369-72.

32. Zvizdic S, Telalbasic S, Beslagic E, Cavaljuga S, Maglajlic J, Zvizdic A, Hamzic S. (2004) Clinical characteristics of rotaviruses disease. Bosn J Basic Med Sci. 4(2):22-4.

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ORIGINAL ARTICLE

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Influence of Seasonal Environmental Variables on The Distribution of Fecal Indicator Bacteria in Seawater of Gaza Strip.

Abstract
A survey of the occurrence of fecal indicator bacteria (Total Coliform, fecal Coliform and fecal streptococci) in sea water was carried out along the coastline of Gaza strip during the period October 2003 and September 2004. The study was implemented to assess the hygiene of water quality in order to give an indication about the actual magnitude of fecal pollution post the discharge of domestic sewage discharge into the seawater without treatment. This type of baseline study is required to develop monitoring strategies and management plans for the coastline area. The results showed that there are pollution for the seawater, the total Coliform means values ranged from 4,800 CFU/100ml to 15,000 CFU/100ml, fecal Coliform ranged from 2,000 CFU/ 100ml to 12,000 CFU/100ml, fecal streptococci ranged from 1100 CFU/100ml to 6100 cfu/100ml. The highest mean values of bacterial indicators were obtained during winter season, while the lowest mean values were recorded during summer season at all site. Fecal Coliform / Fecal streptococci ratio was 2:1.

Keywords: Bacterial fecal indicator organisms; Total Coliform; Fecal Coliform; Fecal Streptococci.

تأثير المتغيرات الموسمية البيئية على توزيع الميكروبات الدالة على وجود التلوث البرازي في مياة البحر لقطاع غزة.

الملخص:
تم اجراء مسح شامل للبكتيريا المستخدمة ككواشف للتلوث البرازي (مجموعة الكولي فورم الكلي، مجموعة الكولي فورم البرازي، مجموعة المكورات السبحية البرازية) في مياة شواطئ بحر قطاع خلال الفترة ما بين أكتوبر 2003 و سبتمبر 2004، أجريت الدراسة لتقييم مدى وجود التلوث البرازي في مياة البحر في مناطق مصبات المياة العادمة و مياة المجاري الغير معالجة. تعتبر هذه الدراسة ضرورية لعمل استراتيجية على المستوى القومي لوضع أسس عامة للتخفيف و معالجة الأضرار الناجمة عن هذه الظاهرة. أظهرت النتائج أن نسبة التلوث بمجموعة بكتيريا الكولي فورم كانت تتراوح ما بين 4800 إلى 15000 وحدة مكونة للمستعمرات لكل 100مل من مياة البحر، مجموعة الكولي فورم البرازي كانت تتراوح ما بين 2000 إلى 12000 وحدة مكونة للمستعمرات لكل 100مل من مياة البحر، أما مجموعة المكورات السبحية البرازية فكانت تتراوح ما بين 1100 إلى 6100 وحدة مكونة للمستعمرات لكل 100مل من مياة البحر. أثبتت الدراسة أن فصل الشتاء كان يحتوي على أعلى نسبة من التلوث، بينما فصل الصيف فكانت نتائجة أقل. كانت نسبة وجود مجموعة الكولي فورم البرازية إلى مجموعة المكورات البرازية السبحة بنسبة 1:2.

الكلمات المفتاحية: الكواشف البكتيرية للتلوث البرازي، مجموعة الكولي فورم الكلية، مجموعة الكولي فورم البرازية، مجموعة المكورات السبحية البرازية.

Introduction

The pollution is one of the problem being faced in the world all through 20th century, the most important factor for water pollution is the discharge of untreated wastewaters into the seawater**[1]**. Historically fecal Coliform and *E. coli* had been used as indicators of choice when monitoring recreational water quality**[2]**. Also the total Coliform and *fecal Streptococci* had been used as an indicator of human enteric pathogens for many years**[3]**. Recent studies have shown that high densities of *E. coli* and *Enterococci* recovered from recreational waters have a stronger correlation with swimming associated gastrointestinal disease than do densities of fecal Coliform bacteria alone**[4]**, both of these indicators have been referred as being equally acceptable for monitoring freshwater and marine water**[5]**. However it is now well established that *E. coli* one of the total Coliform member is not limited to humans but also exists in the intestine of many other warm blooded animals**[1]**. Consequently its presence in water is not specific to human sources

of pollution. This is especially relevant when recognizing that human feces can carry various human enteric pathogens such as *Salmonella spp*., *Shigella spp*., *E. coli*, *Hepatitis A virus* and Norwalk group viruses, *Cryptosporidium parvum*, *Entamaeba histolytica*, and *Giardia lamblia*, in addition most of these pathogens causes a disease to human. In contrast most of these pathogen do not colonize non human species potentially resulting in less risk posed by non human species fecal pollution**[6]**. Therefore it is important to know whether fecal pollution originate from human source or non human source to properly assess risk and researches are needed to determine the characteristics of indicators, to meet this challenge there have been various attempts to develop method that differentiate the sources of fecal pollution, initially the ratio of fecal Coliform to *fecal Streptococci* was proposed where a ratio of baseline 4.0 would indicate human source pollution, whereas a ratio of <0.7 would indicate non human source pollution**[7]**. More traditional method for discriminate bacteria**[8]** have included biochemical tests**[9]**, phage susceptibility**[6]**, outer membrane protein profiles**[1]**, multiple antibiotic resistance**[5,10]** fimbriation**[11]**, bacteriocin production and susceptibility to antibiotics and other methods**[12]**. The survival of human enteric bacteria in the aquatic environment has attracted much interests in view of its public health significance**[13,14]**. Enteric bacteria exposed to the marine environment simultaneously encounter a variety of an abiotic and biotic challenges, among the former, light appears to be critical in affecting see water survival. Previous growth history plays a major part in pre-adaptation of the cells, and stationary phase cells are generally more resistant than exponentially growing ones. Predation mostly by protozoa is probably the most significant biotic factor**[15]**. The rate of *E. coli* die off increases rapidly as solar radiation increases. Conversely the rate of die off of *Enterococci* did not increase as the intensity of sunlight increases**[16]**. Fecal microorganisms differed in their sensitivity to light in sea water and greater sunlight exposure is required to inactivate *Enterococci* compared to fecal Coliform**[16,17]**. Coastal zone management is an important issue for the development of Gaza region. The coastal region and beach of Gaza strip is currently used for disposal of wastewater. In the same time, the anthropogenic activities such as urbanization, Agriculture, and industrial processing have resulted in increase inputs of both chemical and biological pollutants to seawater**[18]**. More information are available on the microbial sanitary conditions in selected area of the Gaza Strip coastal waters including the prevailing microbial communities and pollution. Counts and assessments **[19,20,21]**. Other studies conducted in Arab countries **[22]** in the study of Arabian Gulf seawater pollution reported that bacterial counts had distinct patterns peaking in Spring and Autumn and diminishing during Summer and Winter; total and fecal coliform counts fluctuated depending on the presence of nearby recreation area, while**[23]** in their survey to Al Aqaba seawater reported that occurrence of enteric indicator organisms of total coliform and fecal coliform and enteric pathogenic bacteria. In assessing levels of pollution (Zoffmann et al. 1989) **[24]** **c**lassified marine beach contamination with fecal coliform as follows: Beaches with cell counts of less than 100/L free from contamination, 100 to 1000 /L, slightly contaminated, 2000 to 10,000/L highly contaminated, and ,more than 10,000/L dangerously contaminated. The goals of this study were to evaluate the rate of microbial pollution in sea water, more detailed information concerning their assemblage with respect to their abundance and to assess their diversity and variability in relation to hydrographic parameters.

Materials and Methods

Seawater Samples: The study was carried out during the period October 2003 and September 2004. A total of 1200 seawater samples were collected from different stations. The seawater samples collection were as the following: 100 water samples per month, 20 samples from each station every month. The sampling period was carried out twice per month. Seawater samples were collected 2 meters from a shore at a depth of 45cm using 10 sterile 100 polypropylene bottles for each Sample to ensure that replication within the container would not affect the results. Samples were placed in the dark on ice and processed within 6 hours of collection in adherence to *APHA(1995) standard methods***[25]**. Five sites (Stations) were selected along the sea shoreline in Gaza strip of Palestine**[26]**. The stations were chosen along the coastline to ensure the samples to be representative for the whole under investigated area. These stations comprised station I (Beitlahia), station II (Jabalia), station III (Soudania), station IV (Beach Camp) and station V (Sheikh Ejleen).

Gaza Strip is located at the Eastern side of the Mediterranean Sea.

Analysis of Seawater Samples The Sea water samples were examined for the detection of total Coliform, fecal Coliform, and *Fecal streptococci*.

1-Total Coliform determination: A 100 ml of seawater was vacuum filtered in duplicate through 0.45 µm sterile membrane filter (Cellulose nitrate filters, type Whatman) **[27]** and placed on M-Endo media. The plates were incubated for 18-24hr at 35^0C , colonies with red color were suspected to be Coliform and were confirmed by using Gram stain and a portion of the colony was inoculated into lactose fermentation test tubes containing lauryl sulphate broth, also API 20E was used for identification.

2-Fecal Coliform determination: A 100ml of seawater was passed through the membranes which were placed on the surface of M-FC media. The plates were incubated for 18-24hr. at 44-45^0C, the suspected colonies with the light blue-blue color were confirmed by EC broth and tubes were incubated for 18-24hr. at 44-45^0C, air bubbles in the Durham tubes indicated positive results for fecal Coliform.

3-Fecal Streptococci determination: A 100ml of Seawater was filtered and the membranes were placed with the forceps on the surface of M-Enterococcus agar media. The plates were incubated for 18-24hrs at 35^0C. The suspected colonies with light red-red color were counted and confirmed by subculture on bile Esculin agar. The colonies of fecal streptococci had a black color and catalase negative test.

Statistical analysis: A computer program was used for data analysis. The descriptive data was given as a log mean, standard deviation, the chi square test and standard error were used for the analysis assessment

Fig (1) A Map for the coastal area of Gaza Strip shows the sampling location
Map key: Station I: Beitlahia, Station II: Jabalia, Station III: Soudania, Station IV: Beach Camp, Station V: Sheikh Ejleen

Results

The bacterial population recorded during the study period are illustrated in the tables (1,2,3).

a-Total Coliform:

The results of the total Coliform by different stations and seasons are recorded in table (1).

Table (1): Seasonal variations of the total Coliform (CFU/100ml^3) mean values at different stations.

	Station I	Station II	Station III	Station IV	Station V
Winter	12000 (10000-14000)	11000 (9000-13000)	14000 (13000-15000)	15000 (14500-15500)	11800 (11600-12000)
Spring	13000 (12000-14000)	14000 (13500-14500)	12000 (11000-13000)	14000 (13000-15000)	12000 (11000-13000)
Summer	6000 (5000-7000)	6500 (6000-7000)	4800 (4400-5200)	6900 (5900-7900)	5800 (4800-6800)
Autumn	4800 (4200-5400)	6200 (5800-6600)	4900 (4500-5300)	7000 (6000-8000)	6200 (5800-6600)

Bacterial count of total Coliform was ranged between 4800 CFU/100ml and 15000 CFU/100ML. The highest mean value was obtained at station **IV during winter season** while the lowest mean value was recorded at station **I during Autumn.**

b-Fecal Coliform

The results of the mean value of the fecal Coliform by different stations and seasons are present in table 2.

Table 2: Seasonal Variation of the fecal Coliform (CFU/100ml^3) mean values at different stations

	Station I	Station II	Station III	Station IV	Station V
Winter	9000 (8500-9500)	8900 (8500-9300)	11000 (1800-11200)	12000 (11800-12200)	8000 (7700-8300)
Spring	7800 (7500-8100)	10000 (9000-11000)	10000 (9500-10500)	11000 (10000-12000)	9000 (8900-9100)
Summer	4800 (4600-5000)	4000 (3900-4100)	4000 (3800-4200)	3000 (2900-3100)	2000 (1800-2200)
Autumn	4300 (4000-4600)	2100 (2000-2200)	3800 (3500-4100)	2300 (2100-2500)	3000 (2900-3100)

The distribution of the fecal Coliform mean value in the seawater was varied , the highest mean value was 12000 CFU/100ml obtained at station **IV during winter** while the lowest mean value was 2000CFU/100ml obtained at station **V during summer season.**

c-Fecal Streptococci

The results of the mean total count of *fecal streptococci* by different stations and seasons are shown in table (3).

Table3: Seasonal variation of the *fecal streptococci* (CFU/100ml^3) mean values at different stations.

	Station I	Station II	Station III	Station IV	Station V
Winter	4200 (4000-4400)	6000 (5900-6100)	6100 (6000-6200)	4000 (3800-4200)	3500 (3300-3700)
Spring	4100 (4000-4200)	6500 (6300-6700)	5000 (4900-5100)	6000 (5800-6200)	4100 (4000-4200)
Summer	2100 (2000-2200)	2000 (1800-2200)	2000 (1900-2100)	1100 (1000-1200)	1000 (900-1100)
Autumn	2500 (2300-2700)	1800 (1600-2000)	1900 (1800-2000)	1200 (1000-1400)	1200 (1100-1300)

The distribution of fecal Streptococci among different stations was varied. The highest mean value was recorded at station **II (6500CFU/100ml)** during spring season while the lowest mean value was recorded during summer season at station **V.**

Discussion

Mediterranean Sea is an open sea and it's relatively higher in osmotic pressure, low in nutrients and quite cold at great depth, the pH also tends to be higher than is optimal for most microorganisms. Much of the microscopic life of the sea water is composed of photosynthetic diatoms and other algae largely independent of preformed organic nutrient sources, these organisms use energy from photosynthesis and atmospheric, carbon dioxide. The basis of the seawater food chain sea bacteria it benefit from the eventual death and decomposition of phytoplankton **[13]**. The lack of operational and effluent wastewater treatment plant makes wastewater the main sources of pollution of the coastal zone of Gaza Strip. The wastewater is discharged untreated or partially treated along the shoreline resulting in pollution of most of the shoreline. In addition to the treatment plants effluents. There are more than 20 individual sewage drains ending either on the beach or a short distance away in the surface zone. Higher percentage of the waste water is generated in Gaza Strip is currently discharged without treatment into the sea (50,000 cubic meters per day) **[18]**. Only about 40% of the sewage generated in the Gaza Strip is properly treated **[18]**. The result of this study demonstrate that localized pollution by pathogenic bacteria from waste and eutrophication effects can be severely along the beach shoreline and such conditions may prevail throughout the coastline of the Gaza Strip, because the results of the total Coliform, fecal Coliform, and *fecal streptococci* recorded exceeds the permissible limit recommended by APHA, US EPA. The pollution resulted in damaging not only the landscape of the sole recreational places in Gaza but also destroying the marine fauna and flora. The potential risk for these contaminants on public health and marine life are indeed of more attention at the national level. The results of the study showed that the highest rate of pollution recorded was during the winter season (total Coliform 15000 CFU/100ml) which is the rainy season in the area. Rainfall can have a significant effect on indicator densities in recreational waters can be increased to high levels because animal wastes are washed from forest and Pasteur land and urban setting or because treatment plants are overwhelmed and causing sewage to bypass treatment, in either case, the effect of rainfall on beach water quality can be quite dramatic. Coliforms and thermotolerant Coliforms are known to have extra-external sources, these two indicators groups can grow to very high densities in industrial wastewaters such as those discharged by pulp and palper millis. *E. coli* and Enterococci are not usually associated with industrial wastewaters but some investigator believe that these indicators can grow in soil in tropical climates, under any of these conditions where the source of the indicator is other than the feces of warm blood animals. Fecal Coliform (FC) and *Fecal streptococci* (FS) ratio was used to differentiate between the source of pollution i.e. the ratio FC/FS > 2.0, this ratio is not prove the pollution of human origin due to greater persistence of Enterococci than of fecal coliforms or *E. coli* in saline water has been documented **[28].** In contrast one study demonstrated that Enterococci from waste stabilization pond effluent had a greater inactivation rate in seawater than fecal coliforms or *E. coli* **[29]**. The results of the preceding studies and work conducted by (Anderson et al. 2005) **[30]** suggest that persistence characteristics of Enterococci are heterogeneous which lead to incomplete understanding. Therefore we have a doubtful the useful of used the ratio of fecal Coliform/fecal streptococci. The natural self purification of sea water is caused by diverse physical, chemical, and biological factors. The period of survival of enteric bacteria and other bacterial indicator of fecal pollution are highly variables ranging from fractions of hours to weeks depending on the specific characteristics of each organism and on several other factors like light in summer **[31]**. Sunlight inactivation in seawater of fecal coliform, Enterococci, *E. coli* and also somatic coliphage was found to be 10 times higher than the corresponding dark inactivation. The overall ranking (from greatest to least inactivation) was as follows, Enterococci, fecal coliform ≥ *E. coli*, and somatic coliphage **[8]**.

The *fecal streptococci* organisms present in water indicate that the water has been polluted with feces (sewage); their incidence was in parallel with the fecal coliform and has the same indicative power of the fecal Coliform. Some environmental organizations believe that the *fecal streptococci* represent the true evidence for fecal Coliform. This is because the differential die off for enterococci is not as great as that for *E. coli* **[32,33,34].**

Other factors playing a role in determining the number of bacteria, are the temperature especially high temperature in summer as it encourages the organisms to multiply and increase rapidly this is

supported by experiment conducted by (Carlucci and Pramer, 1960) **[35]** in 48hr experiment in natural seawater (5-40^{o}C) and by (Vasoncelos and Swartz, 1976) **[36]** in a 6 day experiment. The availability of nutrient, particularly phosphates, nitrates by marine bacteria which operates at high rate in summer and the ratio of die off rates of bacteria in the marine environment decreases. In addition there are factors of heavy tidal and flushing coursing waves which accelerate the cleaning and rapid dispersion of wastes. Bacterial activity will exhaust the oxygen (decrease in dissolved in seawater) and increase the BOD (Biological Oxygen Demand), therefore these parameters may be used to express the rate of microbial pollution **[37]**

Conclusion

Contamination of recreational water by fecal pollution is a serious public health concern, and monitoring for actual pathogens is not feasible. We need to rely on an indicator organisms that will not replicate in the environment and is easy to detect despite the limitations. Fecal indicator bacteria may be better than other methods currently in use.

References

1-Carson C. A.; Shear, B. L.; Ellersieck, M. R.; and Asfaw, A. (2001) Identification of fecal *E.coli* from humans and animals by ribotyping. Applied and Environmental Microbiology. 67,(4):1503-1507

2-Chesceri, L. S.; Greenberg, A. E.; and Eaton, A. D. (1998) *Standard methods for examination of water and wastewater* 20th ed. P: 9-32 and 9-75. American Public Health Association Washington D.C.

3-Anderson, K. L.; Whitlock, J. E.; and Harwood, V. J (2005) Persistence and differential survival of fecal indicator bacteria in subtropical waters and sedimentas. Applied and Environmental Microbiology. 71,(6): 3041-3048

4-Bartram J.; and Ress G. (ed). (2000) Monitoring bathing water: Practical guide to the design and implementation of assessments and monitoring programs.113-167 . Routledge, NewYork N. Y.

5-Sayah, R. S.; Kaneene, J. B.; Johnson, Y.; and Miller, R. (2005) Patterns of antimicrobial resistance observed in *E. coli* isolates obtained from domestic-and wild-animal fecal samples, human septage, and surface water. Applied and Environmental Microbiology. 71,(3):1394-1404.

6-Allwood, P. B.; Malik, Y. S.; Hedberg, C. W.; and Goyal, S. M. (2003) Survival of F specific RNA coliphage, Feline calivirus and *E. coli* in water: a comparative study. Applied and Environmental Microbiology. 69,(9):5707-5710

7-Daby, D.; Turner, J.; and Jago, A. (2002) Microbial and Nutrient pollution of coastal bathing waters in Mauritus .Environmental International 27: 555-566

8-Ishii, S.; Ksoll, W. B.; Hicks, R. E.; and Sadowsky, M. J. (2006) Presence and growth of naturalized *E. coli* in temperature soils from lake superior watersheds. Applied and Environmental Microbiology. 72,(1):612-621.

9-Trepeta, R.W.; and Edberg, S. C. (1984) Methylumbelliferyl-β-D glucuronide-based medium for rapid isolation and identification of E. coli. J. clin. Microbiol 19: 172-174.

10-Choi, s.; Chu. W.; Brown, J.; Becker, S. J.; Harwood, V. J.; and Jiang, S. C. (2003) Application of enterococci antibiotic resistance patterns for contamination source identification at Huntington beach. California Mar. Pollut. Bull. 46:748-755.

11-Latham, R. H.; and Stamm, W. E. (1984) Role of fimbriated E. coli in urinary tract infections in adult women correlation with localization studies. J. Infect. Dis. 149: 835-840

12-Govan, J. R.; and Harris, G. W. (1985) Typing of Pseudomonas cepacia by bacteriocin susceptibility and production. J. Clin. Microbiol. 22: 490-494

13-Olsen, I. E.; Brown, D. I.; Baggesen, D. I.; and Bisgaard, M. (1992) Biochemical and molecular characterization of salmonella enteric serovar berta and comparison of methods for typing. Epidemiol Infect. 108: 243-260

14-Davies, R. J.; Bell, R. G.; and Donnison, A. M. (1994) Sunlight inactivation of Enterococci and fecal Coliforms in sewage effluent diluted in seawater. Applied and Environmental Microbiology. 60, 2049-2058

15-Davies, C. M.; and evison L. M. (1991) Sunlight and the survival of enteric bacteria in natural waters. Journal of Applied Bacteriology, 70: 265-274

16-Sinton, L. W.; Hall. C. H.; Lynch. P. A.; and Davies colley, R. T. (2002) Sunlight inactivation of fecal indicator bacteria and bacteriophages from waste stabilization pond effluent in fresh and saliva

waters. Applied and Environmental Microbiology. 68,(3):1129-1131.

17-Fong, T. T.; and Lipp, E. K. (2005) Enteric viruses of humans and animals in aquatic environments health risks, detection an potential water quality assessment tools. Microbiol. Mol. Biol. Rev. 69:357-371.

18-Palestinian Ministry of Environmental Affairs (2001) *Assessment of land based pollution Sources.* Gaza Strip.

19- Afifi, S. (1998) *Identification and evaluation of seawater beach quality state in Gaza Governate.* Environmental and Rural Research Center. Islamic University-Gaza.

20-Afifi, S.; El Manama, A. A.; and Shubair, M. E. (2000) Microbial assessment of beach quality in Gaza. Egypt. J. Med. Lab. Sci. 9,(1):51-63

21- Ajour, M.; and Darabih, S. (1997) *Strategy for coastal zone planning and management in Gaza Strip Palestine proceedings of the third international conference on the Mediterranean coastal environment med coast* 97 Nov. 11-14

22- Banat, I. M.; Hassan, E. S.; El Shahawi, M. S.; and Abu Hilal, A. H. (1998) Post-Gulf war assessment of nutrients, heavy metal ions, hydrocarbons, and bacterial pollution levels in the United Arab Emirates Coastal Waters. Environmental International 24,(112):109-116.

23- Al Moghrabi, S. M.; and Horani, H. K. (1997) A follow up on the distribution of coliform bacteria along the jordnian Coastline of the Gulf of Aqaba. M'utah Journal for Research and Studies. 12,(1):221-241.

24- Zoffmann, C.; Rodrigue, Z.; Valera, F.; Peterfillol, M.; Ruia-Bavia, F.; Torreblanca, M.; Colom, F. (1989) Microbial and nutrient pollution along the coast of Alicante, Spain. Mar. Pollut. Bull. 20:74-81.

25- American Public Health Association. (1995) *Standard method for the examination of water and wastewater* 19th ed. American Public Health Association. Washington D.C.

26- GEP (Gaza Environmental Profile) Part one, *"Inventory of resources"*. Palestinian Environmental Protection Authority, Euroconsult/Iwaco, 1994

27- Al- Moghrabi, S.; and Horani, H. K. (1997) A follow up on the distribution of Coliform bacteria along the Jordanian coastline of the Gulf of Aqaba. Mu'tah Journal for Research and Studies 12,(1):1-13

28- Davies, C. M.; Long, J. A.; Donald, M.; and Ashbolt, N. J. (1995) Survival of fecal microorganisms in marine and fresh water sediments. Applied and Environmental Microbiology. 61:1888-1896.

29- Sinton, L. W.; Hall, C. H.; Lynch, P. A.; and Davies, R. J. (2002) Sunlight inactivation of fecal indicator bacteria and bacteriophages from waste stabilization pond effluent in fresh and saline water. Applied and Environmental Microbiology. 68.1122-1131.

30- Anderson K. L.; Whillock, J. E.; and Harwood, V. J. (2005) Persistance and differential survival of fecal waters and sediments. Applied and Environmental Microbiology. 71,(6):3041-3048.

31- Whitman, R. L.; Nevers, M. B.; Korinek, G. C.; and Byappanahalli, M. N. (2004) Solar and temporal effects on *E. coli* concentration at a lake Michigan swimming beach. Applied and Environmental Microbiology. 70,(7):4276-4285.

32- Keswick, B. H.; Gerbac. P.; Secor, S. L.; and Cech, A. (1982) Survival of enteric viruses and indicator bacteria in groundwater. Journal of Environmental Science and Health. 17,(6):903-912.

33- Omura. T.; Onuma, M.; and Hashimoto, A. (1982) Viability and adaptability of *E. coli* and Enterococci group to salt water with high concentration of sodium chloride. Water Sci. Tech. 14:115-126.

34- Britton, G. Farrah. S.; Rusk, T.; Butner, J.; and Cohn, J. (1983) Survival of pathogenic and indicator organisms in groundwater. Groundwater 21:405-410.

35- Carlucci, A. F.; and Pramer, D. (1960) An evaluation of factors effecting the survival of *E. coli* in seawater. Experimental procedures. Applied and Environmental Microbiology. 8,243-247.

36- Vasconcelos, G. J.; and Swartz, R. G. (1976) Survival of bacteria in seawater using a diffusion chamber apparatus in situ. Applied and Environmental Microbiology. 31.913-920

37- Kataria, H. C. (1996) BOD and COD contents of bores-well water of Bhopal. J. Nature Conserve, 8,(1):69-72.

ORIGINAL ARTICLE

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Prevalence and Seasonal Variation of Fungal Diseases Among Inhabitants of Parts of Gaza-Palestine.

Abstract
Although skin diseases are common, this is the first study addressing the prevalence of fungal diseases in areas of the Gaza Strip, one of the most overpopulated areas in the world, expected to have high prevalence of fungal diseases in Gaza Strip. In the present study data was obtained from the Ministry of health records and from patients attending the Dermatology Department in Al-Shifa Hospital-Gaza. Each patient participated in the study filled a questionnaire including age, sex, residence, type of fungal disease and site of infection. ANOVA was used to compare the means of different species diagnosed according to seasons for years 1998-2001. The present study showed that (32%) of individuals from both sexes suffered from fungal infection. The results showed that both head and skin were the most affected locations the body for infections (15.9%) and (10.5%) respectively. The most prevalent types of *Tinea* recorded was *Tinea capitis* (23.3%). There was a significant association between fungal disease and age (p=0.001). A significant seasonal variation was observed between the mean of fungal disease in winter vs summer (p=0.02) for the years 1998, 2000 and 2001. It was concluded that fungal diseases are still common in the Gaza Strip community and the prevalence between seasons was found to be higher in summer.
Key words: Dermatophytoses, Prevalence, Fungal, Infection, Gaza.

Introduction
Gaza Strip is an elongated area of Palestine bordered by Egypt from the South, the green line from the North, Negev desert from the East and the Mediterranean Sea from the West. The total surface area of Gaza Strip is 300 Km^2, and it is an overpopulated area with an estimated population of 1,443,737 for the year 2004 (1) The average daily mean temperature range from 25 ^0C in summer to 13 ^0C in winter. Average daily maximum temperatures range from 29 ^0C to 17 ^0C and minimum temperatures from 21 ^0C to 9 ^0C in the summer and winter respectively. The average annual rainfall varies from 450mm/yr in the north to 200mm/yr in the south. Most of rainfall occurs during period, the period of October thru March. Superficial fungal infections of the skin, including dermatophytoses, are a public health problem in the world especially in economically underdeveloped and developing countries (2).

In Gaza fungal diseases are common and seem to be related to the habits of personal hygiene and crowdness. Despite, its prevalence, fungal infections has never been studied in Gaza. The present study is aimed to investigate the prevalence of fungal diseases and their seasonal variation among the inhabitants of the Gaza Strip. Additionally, distribution of fungal diseases by age, area and habits was studied.

Subjects and Methods
Data were collected from patients attending the dermatology Department in AL-Shifa Hospital, the main hospital in the Gaza Strip and from the records of Ministry of health. The sample size was 1470 patients. All patients complained from the presence of fungal diseases in some locations of the body including: nails, hands, foot, groin, trunk, face, skin, tongue, beard and vagina. Their ages varied from months to 75 years old. They were examined by a dermatologist and advised of medication for each case. The fungal specimens were examined, classified and confirmed microscopically in 10% KOH. The second phase of this work included the studying of the seasonal variation of fungal diseases in Gaza Strip from 1998t hru2001.

Statistical analysis
Statistical package for social sciences Inc., Chicago, Illinois (SPSS/PC) was used for data analysis. Frequency, cross-tabulation and Chi-square were applied and p-values less than 0.05 were considered to be statistically significant. The study variables were entered, one way analysis of variance (ANOVA) procedure was used to test the hypothesis in which several means are equal. ANOVA is used to compare the means of

different species diagnosed according to seasons for years 1998-2001. In order to know which mean differs significantly we perform Turkey's Honesty significant difference (HSD).

Results

The results of the present study showed that the prevalence of fungal diseases was 235 per 100,000 persons living in the Gaza Strip. The number of the infected males and females were 490 (49%) and 510 (51%) respectively. The site of infection with fungal diseases in the body is illustrated in Table 1. A total of 233 (15.9%) cases were in the head, 57 (3.9%)cases in the nails, 57 (3.9 %) cases in the hands, 145 (9.9%) cases in the foot, 114 (7.8%) cases in the groin, 137 (9.3%) cases in the trunk and neck, 154 (10.5%) cases in the skin, 47 (3.2%) cases, in the face, 22 (1.5%) cases in the tongue, 9 (0.6%) cases in the beard and 25 (1.7%) cases the vagina.

This study showed that the general prevalence of fungal diseases in Gaza was 68% (1000 out of 1470).

Table. 1 The distribution of infected persons according to location of infection.

In situ infection	No. of patients	%
Head	233	15.9
Nail	57	3.9
Hand	57	3.9
Foot	145	9.9
Groin	114	7.8
Trunk and neck	137	9.3
Skin	154	10.5
Face	47	3.2
Tongue	22	1.5
Beard	9	0.6
Vagina	25	1.7
Total infected	**1000**	**68**.0
No-infected	**470**	**32**.0
Total	**1470**	**100.0**

A high prevalence of fungal infection was observed in head (15.9) while the least was in the beard (0.6).

Table 2 and Fig.1 The distribution of infected patients with all types of fungal diseases according to the area and population.

Area	No of people in each area	No. of positive fungal cases	Prevalence per 100,000
Al-remal	261	164	63
Al-nasser	160	81	51
Al-shagaeia	333	261	78
Al-tofah	177	130	73
Al-daraj	154	94	61
Al-zayton	167	111	66
Al-sha'af	104	78	75
Jabalia	114	81	71
Total	**1,470**	**1,000**	68

It was observed high prevalence of infected patients in Al-shagaeia (78) while the least one is in Al-nasser (51).

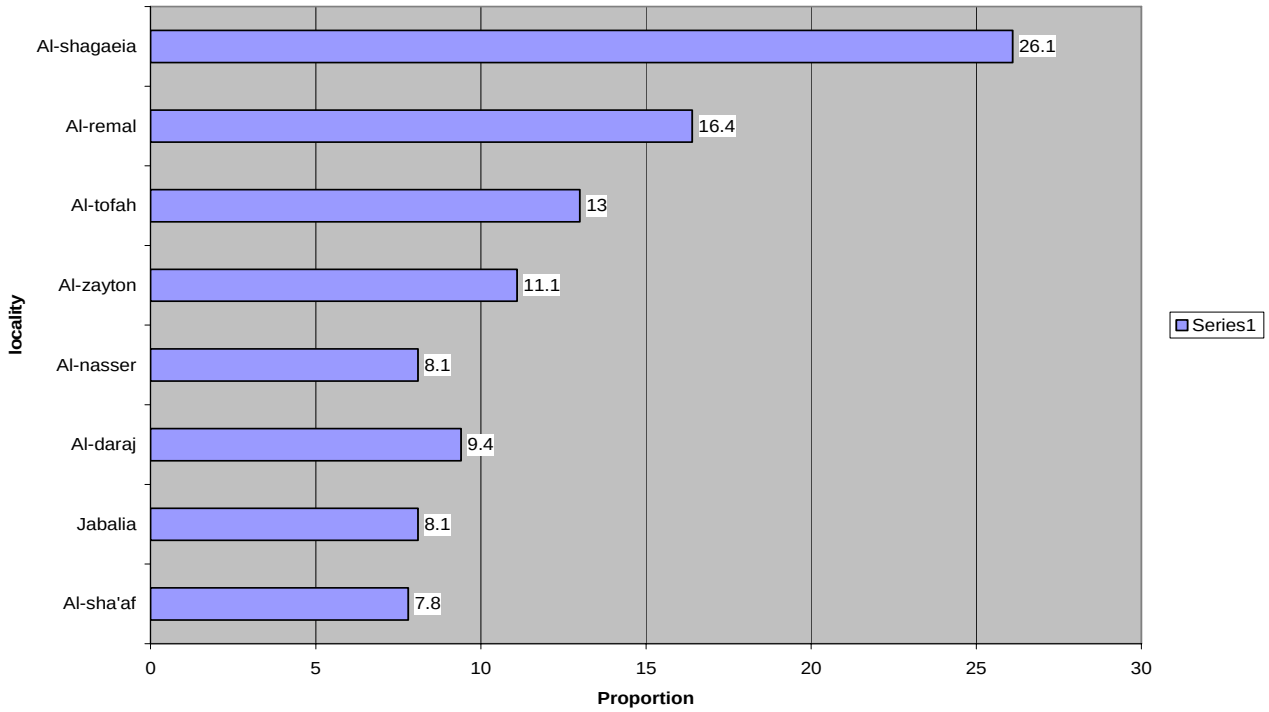

Fig.1 Distribution of infected patients by locality

It was found that the prevalence of fungal diseases was high in Al-Shagaeia area (26.1%) and low in Al-sha'af (7.8%).

Table3. The distribution of infection with different types of fungi

Type of fungus	No. of positive fungal cases	%
Tinea capitis	233	23.3
T. corporis	129	12.9
T.versicolor	145	14.5
T. pedis	129	12.9
T.manuum	23	2.3
T.cruris	84	8.4
T.circinata	82	8.2
T.facial	29	2.9
T.ungiuim	31	3.1
T.barbae	9	0.9
Candidiasis	82	8.2
onychomycosis	24	2.4
Total	**1000**	**100.0**

It was observed high prevalence of *Tinea capitis* (23.3) while the least one is *T.barbae (0.9)*

Table 4. The distribution of fungal diseases according age group.

	Age group of pateints						
	Month to year No. %	2-15 y No. %	16-30 y No. %	31-45 y No. %	46-60 y No. %	61-75 y No. %	p-value
Infected	37 (51.4)	263 (64.9)	340 (59.6)	216 (91.5)	125 (83.9)	19 (50)	0.001
Not-infected	35 (48.6)	142 (35.1)	230 (40.4)	20 (8.5)	24 (16.1)	19 (50)	
	72	405	570	236	149	38	

(χ^2=112.17, Df=5, p=0.001)

It was observed high prevalence of fungal diseases in the age group 31-45 y (91.5%), while the least one in age group 61-75y (50%).

Table 5. The distribution of fungal infections according seasons in 1998.

Type of infection	Winter	Spring	Summer	Autumn
Tinea capitis	346	556	654	375
Tinea corporis	190	278	339	257
T. versicolor	297	502	752	416
T. pedis	196	335	558	555
T. cruris	156	245	486	309
T. manuum	148	177	437	271
T.circinata	177	288	412	239
T. facial	115	111	225	104
T.ungiuim	138	305	604	323
Onychomycosis	222	265	480	320
Candidiasis	529	1056	1873	1065
T. barbae	0	0	30	0
Mean	210*	343	571*	353

ANOVA, F=2.9, p=0.04

By using Tukey's HSD , the difference was observed between the mean of fungal diseases in winter vs summer (p=0.02).
Using ANOVA the prevalence of fungal diseases was shown to be dependent on seasons (f=2.9, p<0.05), since the prevalence was the highest in summer while the lowest prevalence was in winter. Tukey's Honesty significance difference specified that the mean of prevalence of fungal diseases in summer was statistically higher than that of winter (p=0.027).

Table 6. The distribution of fungal infections according seasons in 1999.

Type of infection	Winter	Spring	Summer	Autumn
Tinea capitis	339	553	647	359
Tinea corporis	190	275	330	251
T. Versicolor	297	501	739	493
T. pedis	190	339	543	549
T. cruris	152	244	482	303
T. manuum	-	-	-	-
T.circinata	-	-	-	-
T. facial	-	-	-	-
T.ungiuim	-	-	-	-
Onychomycosis	508	1008	1687	1058
Candidiasis	222	267	470	317
T. barbae	-	-	-	-
Mean	271*	455	700*	476

ANOVA, F=2.3, p=>0.05

By using Tukey's HSD , No difference was observed between the mean of fungal diseases in winter vs. summer (p=>0.05).

Table 7. The distribution of fungal infections according seasons in 2000.

Type of infection	Winter	Spring	Summer	Autumn
Tinea capitis	330	510	638	350
Tinea corporis	188	288	344	261
T. Versicolor	300	510	737	503
T. pedis	196	353	554	541
T. cruris	157	248	483	277
T. manuum	141	171	429	269
T.circinata	171	280	403	227
T. facial	85	103	250	109
T.ungiuim	128	293	601	313
Onychomycosis	209	373	486	328
Candidiasis	485	982	1666	1051
T. barbae	0	0	0	0
Mean	217*	374	623*	384

ANOVA, F=3.9, p=0.01

By using Tukey's HSD , The difference was observed between the mean of fungal diseases in winter vs summer (p=<0.05).

Table 8. Distribution of fungal infections according seasons in 2001.

Type of infection	Winter	Spring	Summer	Autumn
Tinea capitis	50	99	62	22
Tinea corporis	14	31	61	23
T. Versicolor	5	39	70	31
T. pedis	9	33	53	34
T. cruris	3	28	39	14
T. manuum	1	5	14	4
T.circinata	5	22	38	18
T. facial	4	11	12	2
T.ungiuim	-	-	-	-
Onychomycosis	1	2	18	4
Candidiasis	5	9	40	26
T. barbae	1	1	2	7
Mean	9.7	25	37	17

ANOVA, F=3.5, p=0.02

By using Tukey's HSD , The difference was observed between the mean of fungal diseases in winter vs summer (p=<0.05).

Table 9. The type of fungal diseases distributed by year from 1998-2001 in Gaza city.

Type of infection	1998	1999	2000	2001
Tinea capitis	1934	1898	1828	233
T. corporis	1160	1046	1081	129
T.versicolor	1967	2030	2050	145
T. pedis	1644	1621	1644	129
T.cruris	1196	1181	1165	84
T.manuum	1033	-	1010	23
T.circinata	1116	-	1081	82
T.facial	585	-	547	29
T.ungiuim	1370	-	1335	-
Onychomycosis	1287	4261	1296	24
Candidiasis	4523	1276	4184	82
T.barbae	30	-	-	9
Total	17845	13313	17221	1000
Prevalence	(29%)	(17%)	(27%)	(27%)

The lowest Annual distribution of fungal diseases is in 1999.

Discussion

This study is the first epidemiological survey for fungal diseases in Gaza Strip where the prevalence and incidence of fungal diseases is available through the data and records of Palestinian Ministry of Health. All individuals that participated in the study were attended the dermatology department at Al-Shifa hospital presenting with different complaints. From the present study it is possible to draw a true picture to estimate prevalence and the specific types of fungal diseases in Gaza. The study showed that almost half of the studied individuals suffered from fungal diseases. Al-shagaeia area had the highest prevalence of fungal diseases among other localities of Gaza Strip

2001 a significant correlation between prevalence and seasons al variation (summer vs. winter) was found. Very high humidity in Gaza especially during the summer may explain the high prevalence of fungal diseases observing during this period.

It is important to indicate that the missing information concerning four different infections for the year 1999 can explain the lower prevalence of fungal diseases during this year.

Recommendations

Al-Shagaeia area may need such program to solve this problem and more medical campagains to help in reducing the prevalence of skin diseases.

Acknowledgement

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References.

1. Palestinian Central Bureau of Statistics (PCBS) (1997) Palestine in figures 2003, May 2004.

2. Kasai, T. (2001) Epidemiological investigation Committee for Human Mycoses in the Japanese Society for Medical Mycology. 1997 Epidemiological survey of dermatophytes in Japan. *Nippon Ishinkin Gakkai Zasshi*; 42:11-8.

3. Gonzalez, U.; Seaton, T.; Bergus, G.; Torres, J.M.; Jacobson, J. (2004) Systemic antifungal therapy for *Tinea capitis* in children. Cochrane library, Issue. 2. Chichester: Wiley.

4. Aly, R. (1994) Ecology and epidemiology of dermatophyte infections. *J Am Acad Dermatol*. 31:S21-5.

5. Akpolat, N.O; Akdeniz, S.; Elci, S.; Atmaca, S. and Ozekinci, T. (2005) *Tinea capitis* in Diyarbaki, Turkey. *Mycoses*, 48:8-10.

6. A. Rastegar Lari[1], L. Akhlaghi[2], M. Falahati[2] and R. Alaghehbandan[3] (2005) Characteristics of dermatophytoses among children in an area south of Tehran, Iran. Mycosis. volume 48 Issue 1 (32-37)

7. Cheng, S. and Chong, L. (2002) A prospective epidemiological study on Tinea pedis and onychhomycosis in Hong Kong. Chin. Med. J (Engl) 115(6):860-5.

8. R. Maruyama[1] M. Hiruma[2] K. Yamauchi[3] S. Teraguchi [3] and H. Yamaguchi[4] (2003)An epidemiological and clinical study of untreated patients with *Tinea pedis* within a company in Japan. Volume 46 Issue 5-6 (208 -212)

ORIGINAL ARTICLE

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Brucellosis in Kurdistan Province from 1997 to 2003.

Abstract:

Introduction: Brucellosis, one of the zoonotic, with regard to public health and its impact on socio-economical status of society is very significant in all over the world and especially in developing countries. This survey analyzes the epidemiological status of brucellosis in Kurdistan province. **Materials and methods**: This was a descriptive-analytical Study in which 3880 cases of brucellosis from 1997 up to 2003 evaluated. Titer 1:80 or greater using standard tube agglutination method was estimated as a positive result. These data collected from province's laboratories weekly. Patient's data was analysed and described by using SPSS software.**Results:** Three thousand and eighty cases of brucellosis infection have been studied. In this study 2020 (52.1%) were male and 1860 (47.9%) female, 707 (18.2%) citified, and 3173 (81.8%) rural. The highest level of incidence, with 89 cases of infection per 100000, has been appeared in 2003 and the lowest with 17 cases per 100000 in 2000. Housewife with 39.4% had the highest level of occurrence. There was a relationship between sex with age ($p<0.001$) and with place of living ($p<0.05$). **Conclusion:** According to this study, males in villages and bricklayer in cities are the most affected groups. People training, especially villager and women in cities, about transition paths, prevention methods, food supply and delivery supervising could decrease disease prevalence.

Key words: Brucellosis; Epidemiology.

Introduction:

Brucellosis, although almost eradicated in many parts of the world still remains widespread and endemic in the developing countries [1,2]. Moreover, it is common health problem in some Middle Eastern, Mediterranean countries [3-6] and IRAN [7-9]. Brucellosis is an infectious disease caused by various gram-negative bacteria of the genus Brucella [10]. This disease is the cause of significant economic losses in livestock production due to reproductive disorders and reduced production of affected animals [10]. A severely debilitating disease requires prolonged treatment with a combination of antibiotics often leaving permanent and disabling sequel, and results in considerable medical expenses in addition to loss of income due to loss of working hours [11]. Brucellosis can be transmitted to humans through contact with animals or their products; it is an occupational hazard to persons engaged in certain professions (e.g., veterinarians, slaughterhouse workers, and farmers) [12]. According to WHO report, the whole number of diagnosed patients might be 10 to 25 times lesser than real statistics of occurrence of this disease in community; false diagnosis, especially about chronic brucellosis that is extremely hard to diagnose, can probably be one of the reasons [13-15]. However, increasing trend of brucellosis prevalence in Kurdistan province and even all over the country is not concordant with decreasing trend of most of the other communicable diseases. The prevalence rate of brucellosis in different parts of Iran varied from 1.5 up to 107.5 per 100000 in 2003. The highest levels of infection appeared in Hamedan with 107.5,

Kurdistan with 83.5, Azarbaijan Gharbi with 71.4 and Zanjan with 67.1 per 100000 people [13, 16- 18]. Thus, its prevention, control and eradication are a major challenge for public health program. Brucellosis is caused by members of the bacterial genus Brucella [11]. The aim of this study is determining epidemiological status of brucellosis in Kurdistan province covering seven-year period.

Materials and methods:

During the 7-year period from 1997 to 2003, 3880 cases of brucellosis registered in Brucellosis Care Program of Kurdistan province were evaluated. Regional health centre collected all cases of brucellosis data from medical offices, laboratories, hospitals, and health centres, weekly. The data registered and analysed by health group. The cases were defined by clinical symptoms and confirmed by a positive standard agglutination test. Titer 1:80 or greater using standard tube agglutination method was estimated as a positive result. Information about the sex, age, location, occupational risk, contact with the animals recorded by health stuff. These patients treated according national standard protocol for brucellosis. Finally, the data entered to SPSS11 software, and analysed with T test and X^2.

Results:

Three thousand and eighty cases of brucellosis from 1997 till 2003 evaluated. The highest rate of prevalence with 89 cases per 100000 has occurred in 2003 and the lowest with 17 per 100000 in 2000 (see Figure 1).

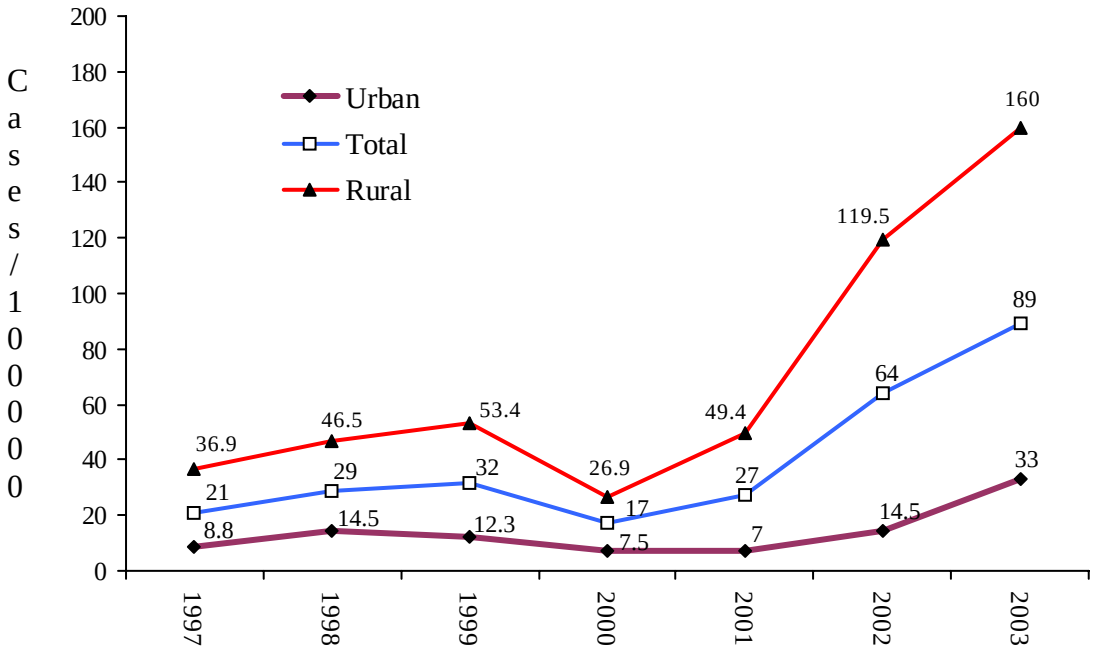

Figure 1: Brucellosis prevalence rate in Kurdistan province from 1997 to 2003 (Cases/100000).

In this study, 1860 cases (47.9 %) were female, and 2020 cases (52.1%) males. 3173 (81.8%) patients were rural. In the female group, 1484 patients (79.8%) were living in villages. There was a significant relationship between relationship between the number of cases of brucellosis and sex in relation to place of living ($p<0.05$). (See Figure 2 and table 1).

Table 1: Relationship between patient's sexes with place of living in Kurdistan province from 1997 to 2003.

Place of living / sex	Urban		Rural		Total	
	N	%	N	%	N	%
Males	331	46.8	1689	53.2	2020	52.1
Females	376	53.2	1484	46.8	1860	47.9
Total	707	100	3173	100	3880	100

(P=0.002, Df=1 ,X2=9.527)

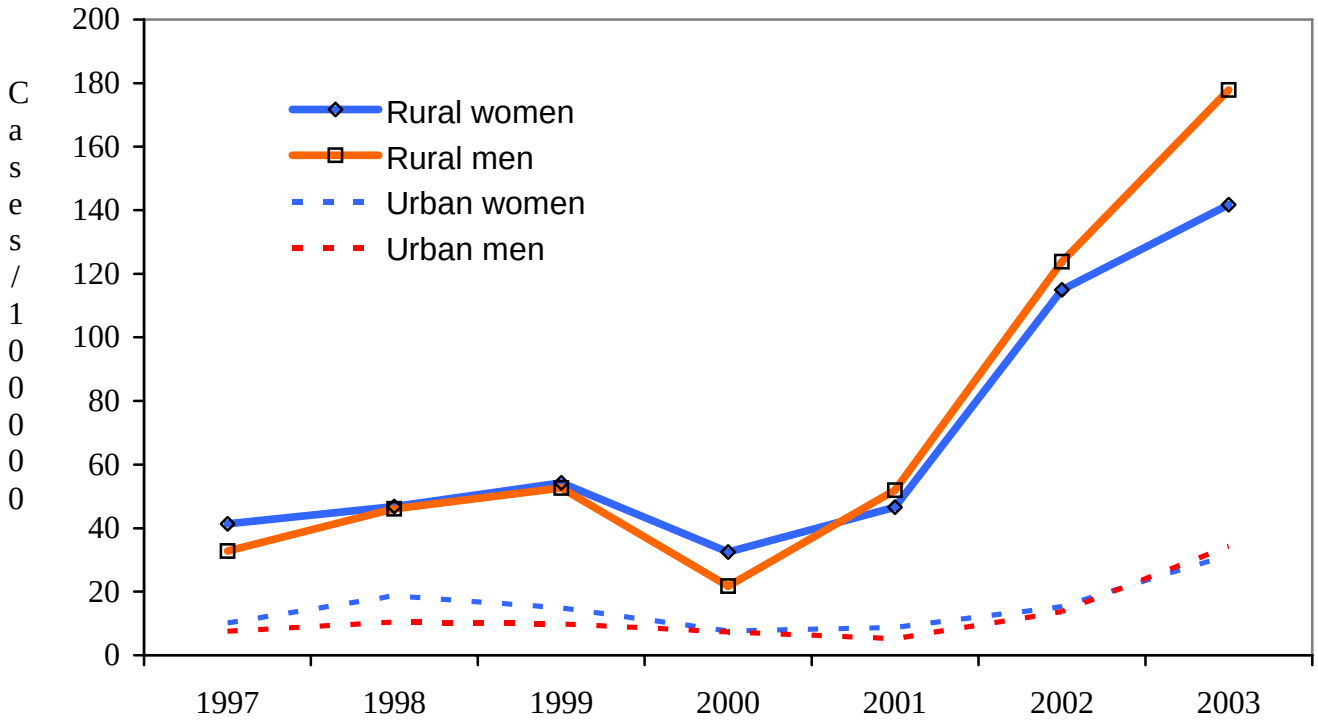

Figure 2: Brucellosis prevalence rate per sex and place of living in Kurdistan province from 1997 to 2003 (Cases/100000).

The mean age of patients was 30.03 years (±18.03). The mean age in rural patients was 29.76 years (±17.99) and in urban 31.22 years (±18.17). There was a significant relationship between the number of cases of brucellosis and age in relation to sex (P<0.001). (See Table Num.2).

Table 2: Relationship between age group and sex in brucellosis patients in Kurdistan province from 1997 to 2003.

Age group (year) / sex	Females		Males		Total	
	N	%	N	%	N	%
Less than 15	405	21.8	601	29.8	1006	25.9
16 to 24	377	20.3	466	23.1	843	21.7
25 to 44	631	33.9	490	24.3	1121	28.9
45 to 54	239	12.8	173	8.6	412	10.6
More than 55	208	11.2	290	14.4	498	12.8
Total	1860	100.0	2020	100.0	3880	100.0

(P=0.000,Df=4,X2=82.936)

In this study, 1527 patients (39.4%) were housewife, 809 (20.8%) farmers, 802 (20.6%) students, and 203 (5.2%) shepherds and 539 (14%) patients had been from other occupation. 2410 (62.1%) patients had the livestock contact, 1406 (36.2%) had no contact and the status of 64 (1.7%) patients were unknown. Patients with the age range of 25-44 had the highest rate of contact history. Brucellosis diagnosis trend per months is in the Figure 3.

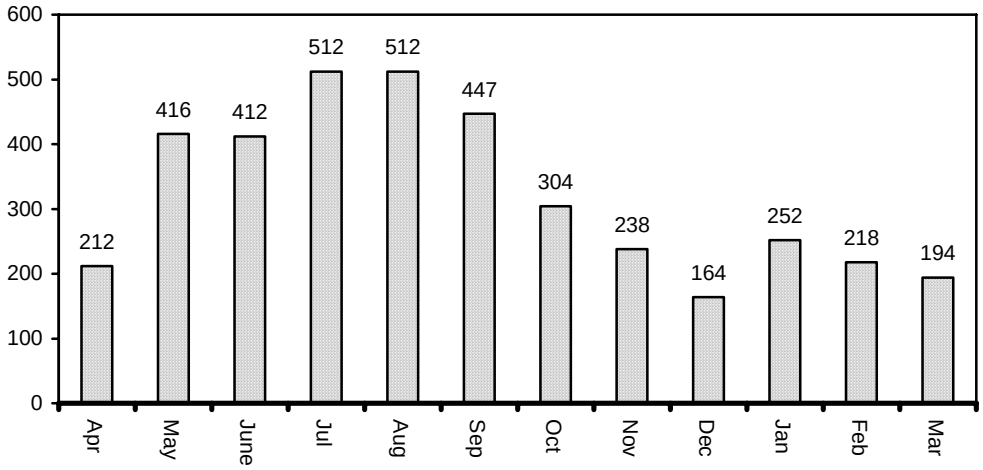

Figure 3: Frequency of brucellosis patients in different months of year in Kurdistan province from 1997 to 2003.

Discussion:

Annual brucellosis prevalence rate is about 1 to 75 per 100000 people in Mediterranean regions and Meddle East [7, 13]. However, this rate has approached 550 per 100000 people in endemic regions [3, 5, 6, 19]. In this study, the lowest rate of outbreak has occurred in 2000 and the highest in 2003. Prevalence rate in Iran is about 132 per 100000 [18]. Kurdistan province's rate is lower than national average rate. It is interesting that the prevalence rate in 2000 is lower than previous years but increased in following years. Alteration of descriptions and changes in brucellosis data collection systems in the province can be one of the reasons. In Perez-Rendom study, has been done in Spain in 1992, prevalence rate was 66.27 per 100000 in males and 38.2 per 100000 in females [19]. In endemic regions, young males were more infected by brucellosis [20]. In this study, 47.9% was females and 52.1% males. In others study the ratio between males and females was reported as 1.8 to 1 [21], 1.05 to 1 [22] and in our study it was 1.01 to 1. In another study [23], the proportion of males was 4 times more than females. May be the reason is that in our society. In addition to males, females are cooperating in caring livestock, milking and stable cleaning, too. Although in Kurdistan province, more than 60 percent of population live in cities, brucellosis prevalence in rural areas was always more than cities and 81.8% of patients were rural. But in other study the this is less than ours; for example, in Saudi Arabia's study it was 63.5% [20, 21], in Turkey's survey 58.7% [22], and in Babel 60.8% [24]. It is predictable because rural population are often stockbreeder and have direct contact with livestock. Using non-pasteurized dairying products in villages is more common than cities. However, disease transition paths in villages are significantly different from cities. There is also a suggestive relationship between sex and place of living, brucellosis prevalence in females is more than males in cities, and it is more common among males in villages.

Contact with livestock is probably a path of transition for females too in rural areas; as, in current living conditions of villagers, males have more contact with livestock and its products. Nevertheless, in cities females through cooking have more contact with livestock products and they are more infected. In this survey, mean age range was 30.03 years which was lower than similar study (36.9 years in Babel, 40.2 years in Turkey, and 33.8 years in Arabia) [21, 22, 24]. In our survey, the percentages of peoples younger than 15 and older than 45 years were higher than other similar surveys [19, 21, 22, 24]. Probably, its reason is that in Kurdistan province younger people are working as stockbreeders. Brucellosis mostly occurred in spring and summer [9, 25]. In other study, have been done in Iran [16, 18, 24] and all over the world [19, 22, 23, 25], most of infections have been diagnosed in spring and summer; concerning incubation period of disease, contact with animal brucellosis might be traced to previous months (i.e. parturition session). Farmers are more affected but, as females are mostly cooperating in stockbreeding tasks, homemaker females are also greatly affected. In villages, students also take share in stockbreeding tasks and help their parents, so the prevalence rate is also high among them. In other surveys, contact with livestock and husbandry are also forming some of risk factors.

Conclusion:

However, prevalence rate of brucellosis in Kurdistan province is lower than IRAN, but people training, especially villager and women, about transition paths, prevention methods, food supply and delivery supervising could decrease disease prevalence.

References:

1. Lee M, Fung K. A case of human brucellosis in Hong Kong. Hong Kong Med J. 2005;11:403-6.
2. Bingol A, Togay-Isikay C. Neurobrucellosis as an exceptional cause of transient ischemic attacks. Eur J Neurol. 2006;13:544–548.
3. Perez-Avraham G, Yagupsky P, Schaeffer F, Borer A, Caiserman S, Riesenberg K. Zoonotic infections as causes of hospitalization among febrile Bedouin patients in southern Israel. Transactions of the Royal Society of Tropical Medicine and Hygiene. 2001;95:301-3.
4. Lithg-Pereira PL, Mainar-Jaime RC, Alvarez-Sanchez MA, Rojo-Vazquez FA. Evaluation of official eradication-campaigns data for investigating small-ruminant brucellosis in the province of Leon, Spain. Trans R Soc Trop Med Hyg. 2001;51:215-25.
5. Gad M.O, Kambel R.A. Evaluation of brucella Enzyme Immunoassay Test in comparison with bacteriological culture and agglutination. J Infect. 1998;36:197-201.
6. Wendell H.H. Modern chemotherapy for brucellosis in human. Rev of Infec Dis. 1990 Nov-Dec;12(6):87-89.
7. Al-Freihi HM, Al Mohaya SA, Al Mohsen MF, Ibrahim EM, Al-Sohaibani M, Twum-Danso K, et al. Brucellosis in Saudi Arabia: diverse manifestations of an important cause of pyrexial illness. Ann Saudi Med. 1986;6:95-7.
8. Six W, Rosegger H, Schneeweiss H, Withalam H. Serological investigation in Nigeria for anthropozoonos in human sera. J Hyg Epidemiol Microbiol Immunol. 1987;31:493-5.
9. Al-Ballaa SR. Epidemiology of human brucellosis in southern Saudi Arabia. J Trop Med Hyg. 1995;98:185-9.
10. Acosta-González R.A, González-Reyes I, Flores-Gutiérrez G.H. Prevalence of Brucella abortus antibodies in equines of a tropical region of Mexico. Can J Vet Res. 2006 October;70(4):302–304.
11. Smits H.L, Kadri M. Brucellosis in India: a deceptive infectious disease. Indian J Med Res. 2005 November;122:375-384.
12. Chomel BB, DeBess EE, Mangiamele DM, et al. Changing trends in the epidemiology of human brucellosis in California from 1973 to 1992; a shift toward foodborne transmission. J Infect Dis. 1994;170:1216-23.
13. World Health Organization. Human health benefits from livestock vaccination for brucellosis: case study. Bull World Health Organ. 2003 Dec;81(12):867-76.
14. Havasl A. Problems and new development in treatment of acute and cronic brucellosis in man. Acta Trop. 1980;37:281-6.
15. Wiseri S. Brucellosis in united states present and future. JAMA. 1980;244:2318-22.
16. Haji-Abdolbaghi M, Rasoli nejad M, Loti B. The epidemiological study of clinical, diagnostic and cure situation of 505 patients affected by brucellosis. Medical college J. 2001;4:34-46.
17. Young EJ. An overview of Brucellosis. Clin Infect Dis. 1995;21:283-290.

18. Centers For Disease Control. Epidemiology status of Brucellosis in IRAN 2003. Tehran: Centers For Disease Control; 2004.
19. Perez-Rendon Gonzalez J, Almenara Barrios J, Rodriguez Martin A. The epidemiological characteristics of brucellosis in the primary health care district of Sierra de C diz. Aten Primaria. 1997 Apr 15;19(6):290-5.
20. Al-Sekait MA. Prevalence of brucellosis among abattoir workers in Saudi Arabia. J R Soc Health. 1993;113:230–3.
21. Elbeltagy KE. An epidemiological profile of brucellosis in Tabuk Province. East Mediterr Health J. 2001 July-September;7(4,5):790-798.
22. Gur A, Geyik MF, Dikici B, Nas K, Cevik R, Sarac J, Hosoglu S. Complications of brucellosis in different age groups: a study of 283 cases in southeastern Anatolia of Turkey. Yonsei Med J. 2003 Feb;44(1):33-44.
23. Serra Alvarez J, Godoy Garcia P. Incidence, etiology and epidemiology of brucellosis in a rural area of the province of Lleida. Rev Esp Salud Publica. 2000 Jan-Feb;74(1):45-53.
24. Hasanjani Roushan MR, Mohrez M, Smailnejad Gangi SM, Soleimani Amiri MJ, Hajiahmadi M. Epidemiological features and clinical manifestation in 469 adult patients with brucellosis in Babol, Northern Iran. Epidemiol Infect. 2004 Dec; 132(6):1109-14.
25. Alton GG, Jones LM, Angus R.D, Verger J.M. Techniques for the brucellosis laboratory. Paris; INRA; 1988.

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ORIGINAL ARTICLE

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Radio Frequency for the Management of Allergic Rhinitis Not Responsive to Medical Therapy In Gaza Strip- Palestine.

Abstract

The ideal treatment for allergic rhinitis unresponsive to medical therapy is still lacking. The aim of study is to evaluate the efficacy of turbinate surgery with radio frequency for treatment of allergic rhinitis unresponsive to medical therapy. Twenty patients treated and followed up for two periods, 6 months and 12 months. **Results:** None of the 20 patients had obvious discomfort, no adverse reactions including bleeding, infection, adhesion, nor a worsening of allergic symptoms. Nasal discharge was improved after 6 months among 14 (70%) (p value 0.03) of cases and dropped to 11 (55%) (p value not significant) after 12 months. After 6 months nasal obstruction was improved among 17 (85%) (p value 0.001) cases and dropped to 16 (80%) p value 0.0016) after 12 months. Other symptoms including nasal itching, sneezing, snoring, headache, eye itching as well anosmia showed dramatic improvement. **Conclusion**: Radiofrequency appears to be an effective and safe tool for treating allergic rhinitis not responding to medical therapy. In the future, radiofrequency has the potential to be one of the most popular surgical modalities and helps treatment of allergic rhinitis.

Introduction:

More than 1.5 billion people on earth suffer from some type of chronic rhinitis and nasal obstruction, frequent symptoms of perennial (year-round) allergic rhinitis and seasonal rhinitis (i.e. hay fever)[1]. Estimates of the number of Americans who suffer from allergic rhinitis vary from 14 million to 26 million. Individuals suffering from allergic rhinitis account for more than $4 billion in healthcare costs in the United States each year[6] Allergic rhinitis is an IgE mediated reaction of the mucous membrane of the nose, the reaction begins with cross linking of antigens to IgE molecules on the surface of a mast cell, releasing mediators (histamine, prostaglandin) and these mediators lead to a variety of symptoms including sneezing, nasal obstruction, rhino rhea, itching of the eyes, nose and throat, headache, and epistaxis. Treatment to eradicate allergies completely is not available, such that the treatment for allergic rhinitis is essentially to try to control the disease. A cure is not anticipated soon but control of symptoms is a reasonable and attainable goal. Currently the traditional treatment is composed of nasal decongestant, antihistamine, local and systemic corticosteroids therapy. Unfortunately symptoms recur immediately after stopping treatment, and this treatment have its drawbacks and side effects[8]. Nowadays radio surgery is strongly suggested as an alternative for these measures. Radio-surgery is a process of cutting and coagulation using a high frequency electric current, the radio surgery unit consists of a transformer, power supply, amplifier and electrical circuits [1].Recent studies demonstrate that radio surgery appears to be an effective and safe tool for treating allergic rhinitis with poor response to medical therapy[2].

Radiofrequency ablation causes ionic agitation in the tissue, inducing sub-mucosal necrosis. The resultant fibrosis of the sub-mucosa adheres the mucosa to the turbinate periosteum, reducing the blood flow to the turbinate. Resultant wound contraction causes volume reduction of the inferior turbinate without damage to the overlying mucosa. The advantage of this procedure:

- Mucosal preservation, which reduces risks of bleeding and crusting postoperatively.
- Can be performed under local anesthesia in a clinic setting and can be repeated if optimum results are not achieved initially.
- Most patients do not require any postoperative pain medication and no nasalpacking is required [2,3,4]

The purpose of this study was to evaluate the outcome of radiofrequency using (Ellman) surgitron on allergic rhinitis among patients unresponsive to medical treatment. **Our objectives were:**

1. To study the impact of radiofrequency in management of nasal discharge, obstruction, itching, sneezing, anosmia, snoring, headache eye itching.
2. To determine patient satisfaction on the radiofrequency for treating allergic rhinitis.

Materials and methods

Twenty patients (11 males and 9 females) were included from the author's private clinic in Gaza City and were clinically evaluated prospectively. All of the patients had allergic rhinitis unresponsive to medical therapy. These patients underwent radiofrequency to the inferior turbinate using Ellman Radiofrequency Instrument (Surgitron FFPF, (Ellman International Inc; Hewlett, New York).

Nasal needle electrode (standard bipolar probe with absyonet needle with parallel 4 cm needle affixed 3 mm apart for precision tissue destruction) with current amplitude rectified at 2-2.5 at coagulation mode. The needle was located superficially on all parts of the mucosa in the turbinate without penetration for 3-5 minutes under local anesthesia in the clinic by using meperacain (3%). Clinical evaluation and follow up was done: before radio surgery and after 2 and7 days for acute complications and 6 and12 months of radiosurgery. Degree of clinical evaluation was ranked as: Minimal, Mild, Moderate, and Severe symptoms. The results of clinical evaluation after radiofrequency were interpreted as: Improved, Ungrateful (mild response), Recurrent, No response

- Nasal symptoms were evaluated with standard symptom scoring. Results were interpreted as responsive (improved) and non-responsive (mild response, recurrent, no response).
- **Analysis of data was performed** By McNemar test, where the significance of the paired results can be simply tested and the results are approximately normally distributed under the null hypothesis, using the following formula: $Z= (n_2-n_1)/ (n_1+n_2)$.
- In all symptoms, the baseline number of patients who were interpreted as non responsive before radiofrequency, were compared with non responsive number after 6 months, also the same baseline patients were compared with non responsives after 12 months (each symptom separately)

Results and discussion

Nasal discharge

Improved cases after 6 months of radiosurgery were 14 (70%) (p value 0.027), decreasing to 11 (55%) (p value 0.045) after 12 months. Non responsive cases were distributed as follows: 4 (20%) cases showed mild response decreasing to 1 (5%) after 12 months, 1 (5%) had no response after 6 month increasing to 5 (20%) after 12 months of therapy (table 1).

This result comes close to the results of Lin Hc study which showed that 55.2% of cases improved after 2 years of radiofrequency[2].

Table :(1) Follow up of nasal discharge by response of cases

	Improved		Mild response		Recurrence		No response		Total
Discharge	6months	12months	6months	12months	6months	12months	6months	12months	
Minimal	2	2	0	0	0	0	0	0	2
Mild	6	5	1	0	1	0	0	3	8
Moderate	3	3	0	0	0	0	0	0	3
Severe	3	1	3	1	0	3	1	2	7
Total	14	11	4	1	1	3	1	5	20

After 6 months z score = 2.7 where n_2=20 and n_1=6 p value 0.0027. After 12 months z score = 2 (where n_2=20 and n_1= 9) p value 0.045

Obstruction

Cases that showed improvement were 17 (85%) (p value 0.001), dropping to 16 (80%) (p value 0.0016) after 12 months of therapy, non-responsive cases were distributed as follows: 2 cases showed mild response after 6 months of therapy decreasing to one after 12 months. One case showed no response to therapy after 6 months increasing to 3 cases after 12 months (table 2).

The results come close to the results of Back LJ study on 20 patients, assessing the efficacy and morbidity of radio frequency for inferior turbinates in patients with nasal obstruction caused by turbinate hypertrophy. His results showed statistically significant improvement in the 12 month follow up without relapses[5]

Table: (2) Nasal obstruction by response of cases

	Improved		Mild response		Recurrence		No response		Total
Obstruction	6months	12months	6months	12months	6months	12months	6months	12months	
Minimal	0	0	0	0	0	0	0	0	0
Mild	2	2	0	0	0	0	0	0	2
Moderate	5	5	0	0	0	0	0	0	5
Severe	10	9	2	1	0	0	1	3	13
Total	17	16	2	1	0	0	1	3	20

After 6 months z scores = 3.5 p value 0.001, after 12 months z scores = 3.47 p value = 0.001

Itching

Total improved cases were 18 (90%) after 6 and 12 month of treatment. (z scores = 3.3 p value 0.001

Sneezing

Recovered cases after 6 months of therapy were 17 (85%) (p value 0.001) dropping to 14 (70%) {p value 0.001} cases after 12 months. Non responsive cases were distributed as follows: 2 (10%) cases had mild response after 6 months increased to 4 (20%) after 12 months, there was only one case who showed recurrence after 6 months and 2 (10%) showed no response after 12 months (table 3).

Table: (3) follow up of sneezing by response of cases:

	Improved		Mild response		Recurrence		No response		Total
Sneezing	6months	12months	6months	12months	6months	12months	6months	12months	
Minimal	3	3	0	0	0	0	0	0	3
Mild	1	1	1	1	0	0	0	0	2
Moderate	6	5	0	1	0	0	0	0	6
Severe	7	5	1	2	1	0	0	2	9
Total	17	14	2	4	1	0	0	2	20

After 6 months z scores = 3.5 p value 0.001, after 12 months z scores = 2.7 p value = 0.001

Snoring

Improved cases were 13 (65%) (p value Not significant) dropped to 12 (60%) after 12 months, 6 (30%) (p value Not significant). Not responded cases were distributed as: 1 (5%) had mild response after 6 months dropped to 4 (20%) after 12 months, 1(5%) recurrence after 6 and 12 months and 3 (15%) cases had no response after 12 months of therapy.

Headache

Improved cases after 6 months were 16 (80%) (p value 0.001) dropping to 14 (70%) (p value 0.001) after 12 months. Non responsive cases were distributed as:3 cases showed mild response after 6 months of therapy increasing to 4 (20%) cases after 12 months, 1 case had recurrence after 6 months and 2 cases had no response after 12 months.

Eye itching

Improved cases were 18 (90%) (p value 0.001) after 6 months dropped to 17 (85%) (p value 0.001) after 12 months. Non responsive cases were distributed as follows: 1 case showed mild response after 6 and 12 month of therapy, 1 case had recurrent symptoms after 6 month and 1 case showed no response.

Anosmia

After 6 months of radiofrequency therapy 20 cases improved (100%) (p value<0.001) dropping to 18 (90%) (p value 0.001) after 12 months.

Safety and patient satisfaction

There were no complications and there was an absence of pain. No bleeding, infection, adhesions, injury to neither olfactory nerve nor worsening of allergic symptoms, was observed. This was similar to the results as of Lin,HC study[2], Back LJ study [6], Coste A study[5], and Fischer Y study[7]. The majority of recovered cases had a reduction of drug intake for allergic rhinitis for a minimum of one year, which improved the quality of lifefor most patients.Most of patients stated that they will consider repeating this procedure if necessary and will recommend the new method to their friends with the same problems.

Males and adolescents alike showed very good responses with radio surgery. Recurrence was observed more frequently in females.

Conclusion

Radiofrequency showed great improvement of all symptoms of allergic rhinitis and proved safe with absence of side effects. This observation is similar to that of M Madani study in 1999 where the results showed 60-80% improvement in symptoms of obstruction, congestion and watery nasal drainage resulting from either allergic or vasomotor rhinitis, following radiofrequency treatment[8].

Radiofrequency is highly cost benefit and cost effective therapy for treating most symptoms of

allergic rhinitis. It is an effective and safe tool for treating cases of allergic rhinitis refractory to medical treatment where the patient needs two cycles of medications one in spring and the another in autumn (each cycle lasts for three months). Drawbacks of using drugs for the management of allergic rhinitis include: immediate recurrence of symptoms after cessation of medical treatment, potential side-effects of systemic drugs and cost of medications, which is comparable to using radiofrequency. Radiofrequency management is an effective modality for reducing nasal symptoms related to the allergic rhinitis.

Using radiofrequency had no side effects, contrary to all the medical treatments. It may be helpful in the management of severe allergic rhinitis unresponsive to management using drugs.

Recommendations

- To consider this type of therapy for severe allergic rhinitis cases and not only cases not responsive to therapy using drugs.
- More studies correlating the relationship of response and that of age and sex of patients is require.

References

1. Oyake D, Ochi K, Takatsu M, Shintani T, Umehara T, Koizuka I., (2004 July); Clinical effect of bipolar radiofrequency thermotherapy on allergic rhinitis, Nippon Jibiinkoka Gakkai Kaibo;107(7):695-701.
2. Lin, Hsin-Ching; Lin, Pei-Wen; Su, Chih-Ying; Chang, Hsueh-Wen, (April 2003); Radiofrequency for the Treatment of Allergic Rhinitis Refractory to Medical Therapy. Laryngoscope. 113(4):673-678,.
3. David santos, facial plastic and aesthetic surgery, medical insight, (online) available from www.facialbeauty.com, access date 15/3/2005.
4. Aimino G, Davi G, and Santella M(1998); Principles of radio frequency in oculo-plastics In: Occulo-plastic surgery with radio frequency, first edition,. Milan, Italy, 13-27.
5. Back LJ, (2002 Oct); Sub mucosal bipolar radio frequency thermal ablation of inferior turbinates . Laryngoscope .;112(10)1806-12.
6. Cost A, Radio frequency is a safe and effective treatment of turbinate hypertrophy PMID:11359172 PubMed-indexed for MEDLINE).
7. Fischer Y, (2000 Nov-Dec); Radio frequency volumetric tissue reduction of inferior turbinate new method in the treatment of chronic nasal obstruction. Am J Rhinol.;14(6):355-60.
8. M Madani, , (1999); Nasal Turbinate Somnoplasty: Utilization of Radiofrequency to Treat Chronic Nasal Obstruction and Congestion ACOMS. http://somnoplasty.com/abstracts/abmadani.htm

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ORIGINAL ARTICLE

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Physical Activity and Body Weight Status in Relation to Ischemic Heart Diseases (IHD)

Abstarct

Background: Cardiovascular diseases (CVD) especially Ischemic Heart Diseases (IHD) are responsible for more than 40 % of mortalities in the Islamic Republic of Iran; As is the case in the Western hemisphere, physical inactivity is the most prevalent CVDs risk factor. The aim of this research was to determine the association of the physical activity indices (work, sport and leisure-time indices), and body weight measures with the risk of developing IHD in Tehran, Islamic Republic of Iran.

Materials and methods: This case – control study was conducted during 2003 and 2004 in Tehran Heart Center and Tehran Shahid Rajaii hospital. A sample of 100 IHD patients (cases) and 100 healthy individuals served as control. The controls were matched to the IHD patients by age (± 5 years), sex. Information about Physical activity was recorded by means of the ***Beacke*** questionnaire. Some important risk factors including hypertension, hyperlipidemia, diabetes and Body Mass Index (BMI) were also recorded. All the data were statistically analyzed with the SPSS for Windows. All reported P values are based on two-sided and compared to a significance level of 5 %.

Results: The patients had significantly lower indices for work, sports and Leisure time Physical Activity ($P < 0.001$). Analysis of BMI showed that there was a significant association between obesity and the risk of developing IHD ($P = 0.01$). There was a significant negative correlation between BMI and Leisure Time Physical Activity index: the higher the BMI, the lower the likelihood of participation in Leisure Time Physical Activity activities. After multivariate analysis, the Leisure Time Physical Activity (LTPA) independently had a protective effect against developing IHD risk, also in the cases group. Obesity increased the risk of IHD nearly 4 times more in comparison with normal subjects.

Conclusion: Physical activity has a beneficial effect on IHD risk developing and IHD related predisposing risk factors.

Key words: IHD, lifestyle, LTPA, CVD, Obesity

Introduction

Ischemic Heart Diseases (IHD) have the highest mortality ranking in the Islamic Republic of Iran [1]. Although studies over the past 10 years have provided strong evidence to support the health benefits of undertaking regular physical activity, increasing numbers of people throughout the world continue to pursue a sedentary lifestyle [2]. Moreover, during the past years, there has been a significant change of attitude with regard to unhealthy lifestyles [3]. Physical inactivity was considered the most prevalent CVDs risk factor with an attributable risk of IHD of 34.6%, making it a serious public health problem [4]. World Health Organization (WHO) estimates that 21% of IHDs are attributable to obesity and overweight [5]. Studies in Islamic Republic of Iran have shown that the prevalence of overweight and obesity in Tehran among individuals aged over 20 years is 40% and 23% respectively [6]. Some studies estimate that up to 80% of cases of coronary heart disease could be avoided through changing lifestyle factors [7]. This study aimed to see the relationship between different type of activities (work, sport and leisure-time) and BMI with the risk of developing IHD among patients in Tehran Heart Center and Tehran Shahid Rajaii Hospital.

Materials and methods

This case – control study conducted between August 2003 and April 2004 in Tehran Heart Center and Tehran Shahid Rajaii hospital. A sample of 100 IHD patients (cases) and 100 individuals free of cardiovascular symptoms (controls) were entered into the study. The sample size was determined by power analysis (statical power (ϒ) >0.80, P.V < 0.05). To put study participants at ease, questionnaires were completed during a private interview held after the second day of hospitalization. The cases were randomly selected from the admission listing of the cardiology clinics. The cases were who had experienced a first event of acute myocardial infarction (diagnosed by typical electrocardiograph changes or cardiac catheterization ("cath"). Controls were matched with the IHD patients by age (± 5 years), sex. They were also randomly selected by the same procedure from friends or colleagues of the patients. Patients' relatives were excluded to eliminate potentially adverse effects of positive family history of IHD as a confounder. All individuals were examined by a cardiologist who recorded detailed medical histories and carried out physical examinations and necessary laboratory measurements (Fast Blood Sugar, High-density lipoprotein (HDL), Low-density lipoprotein (LDL), and Total cholesterol). Information regarding physical activity level was recorded by using the Beacke questionnaire. For purposes of this study, we categorized the physical activities as work, leisure time, or sports related, and scored the intensity of each category according to the Beacke's questionnaire [8]. Body mass index was calculated by dividing the participants' weight (kg) by their height (m) squared (kg/m^2).We used the established WHO criteria

for classification of both groups (normal weight is defined as $18.5 \leq BMI \leq 24.9$, $25 \leq BMI \leq 29.9$ kg/m^2 is defined as overweight and BMI ≥ 30 kg/m^2 is obese) [9]. All data were statistically analyzed using SPSS for Windows, version 11. Continuous variables were presented as mean values ± one standard deviation, while qualitative variables were presented as absolute and relative frequencies. Estimates of the relative risks of developing IHD were calculated by using the Odds Ratio (OR) and corresponding confidence intervals through Multiple Conditional Logistic Regression Analysis. The qualitative data were analyzed with Chi Square (χ^2) or Fisher's exact test. Comparisons between two continuous variables were done using independent sample t test. To estimate the independent effect of each risk factor on IHD, adjusted odds ratios were calculated by logistic regression analysis.

Results

57 (57 %) of cases were males and 43 (43 %) were females with the mean age of 53 ±8.38. 54 (54 %) of controls were males and 46 (46 %) were females with the mean age of 51±9.92. The differences between control and case groups about sex variable and age mean were not significant. Analysis of BMI (Table 1) shows that 47 (47%) of the patients were classified as overweight and being in overweight range increased significantly risk of IHD by 2.13 compared to normal weight group (p= 0.01).

Table1: Distribution of IHD patients and control subject's BMI

BMI((kg/m^2)	IHD patients (%) (Total Number=100)	Controls (%) (Total Number=100)	O.R	95% CI	P-value
Normal	33 (33%)	58(58%)			
Over weight	47(47%)	32(32%)	2.7	1.13, 4.01	0.01
Obesity	20 (20%)	10(17%)	3.5	2, 7.18	0.001

There was a significant negative correlation between BMI and LTPA index among the cases (P =0.01). That is, the higher the BMI, the lower the likelihood of participation in LTPA. According to table 2, the cases had significantly lower indices for work physical activity, sport physical activity and LTPA (P<0.001).

Table2: Comparison of cases and controls by physical activity indices (Data is expressed as mean ± SD)

Physical activity indices	Case (Total Number=100) *Mean ± S.D*	Control (Total Number=100) *Mean ± S.D*	95% CI	P-value
Work Physical Activity index	2.87 ± 0.42	3.22 ± 0.41	0.22, 0.46	<0.001
Sport Physical Activity index	2.04 ± 0.62	2.95 ± 0.95	0.68, 1.14	<0.001
Leisure Time Physical Activity index	2.66 ± 0.38	3.14 ± 0.53	0.31, 0.63	<0.001

Table 3: Adjusted odds ratios for the effect of LTPA and BMI on IHD risk in the cases

Cases (Total Number =100)	Coefficient (β)	S.E	P-value	Exp (β)	95% CI
Leisure Time Physical Activity Score	-1.72	0.38	<0.0001	0.17	0.08, 0.38
BMI ≥ 25	1.38	0.63	0.02	3.58	1.14, 13.76
α constancy:	5.91	4.18	0.15		
Goodness- of- fit test: Chi-square:6.30, df:8, significance: 0.61					

The results adjusted for smoking, income, occupation, hypertension, hypercholesterolemia, family history of IHD, diabetes mellitus, diet showed (Table 3) that LTPA index was inversely and independently associated with the risk of developing IHD (P<0.0001). Where as in cases group BMI ≥ 25 increased significantly the risk of IHD (P =0.02).

Discussion

The results of this study suggest that a low LTPA score is associated with an increased risk of developing IHD. This is consistent with other prospective studies that have found a progressive decrease in the risk of death from cardiovascular disease with increasing physical activity [10, 11]. Based on Isfahan Healthy Heart Program (IHHP], LTPA leads to improve lipid profile and reduction of obesity as major IHD risk factors [12]. A recent meta-analysis has also emphasized the role of physical activity in the prevention of mortality from cardiovascular disease in general [13]. In a series of studies of Harvard University students, a strong inverse association was found between reported exercise levels and death from coronary heart disease. The participants with lower LTPA scores were significantly more likely to have IHD risk factors [14, 15, 16, 17]. Another study showed that women and men who were physically active at least twice a week had a 41% lower risk of development of coronary artery diseases (CAD) than those who performed no physical activity [18]. Also it has been reported that men and women with no weekly vigorous activity had a higher relative risk for CADs mortality [19]. Data from the Canadian National Population Health Survey has shown that physical activity is a significant predictor for CADs [20]. Regular physical activity tends to be a lifelong habit which inhibits cardiovascular mortality and morbidity. Moreover it has been reported that vigorous physical activity has been associated with an increased risk of heart attacks but the optimal intensity of LPTA is still unclear [21,22]. Some studies have examined the association between walking and the risk of coronary heart disease and provided additional evidence for mechanisms by which walking may reduce the risk of chronic diseases, including BMI and physical function, and cholesterol levels [23]. In this study overweight and obese subjects were found to be at an increased risk of developing IHD than normal, non-obese subjects. This observation is also in agreement with another study carried out at University of Florida College of Medicine [16]. Obesity and increased weight could lead to adverse metabolic changes, including increases in blood pressure, unfavorably high cholesterol levels and increased insulin resistance leading to

increase the risk of developing coronary artery disease [24]. In IHHP study the most frequent IHD risk factor was obesity and the total prevalence of increased body weight and obesity in the Tehran population was 63.3% [25, 26]. Therefore the other reason might be attributed to lifestyle changes in population of Tehran such as increasing consumption of high fat foods, fast foods and low levels of physical activity.

Conclousion Physical activity has beneficial effects and reduces the risk of developing IHD. The data presented here demonstrate the importance of LTPA in maintaining cardiovascular health. Because of the widespread and increasing prevalence of physical inactivity, improving physical activity behavior can have a substantial impact on IHDs morbidity and mortality. Therefore community based education and regional epidemiological studies are strongly recommended on the basis of their effectiveness in educating the public at large, increasing physical activity and improving physical fitness among adults and children. Furthermore, clinicians, public health professionals, and legislators must focus their efforts on getting sedentary people to become more physically active.

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References

1-Sarraf-Zadegan N et al. The prevalence of coronary artery disease in an urban population in Isfahan, Iran. *Acta Cardiol*, 1999, 54(5):257-63.

2- Kahan E et al. Correlations of work, leisure, and sports physical activity and health status with socioeconomic factors: a national study in Israel.*Postgraduate Medical Journal*, 2005, 81:262-265.

3- Panagiotakos DB et al. The prevalence of Clinical and Biomedical Markers Related to Cardivascular Disease: Design and Preliminary Results from the ATTICA Study. *Hellenic J Cardiol*, 2003, 44:308-16.

4-Carol EG. The benefits of Physical Activity on Coronary Heart Disease and Coronary Heart Disease Risk Factors in Women. *Women's Health Issues*. 1997, 1:17-22.

5-Obesity: *preventing and managing the global epidemic*. Geneva, World Health Organization, 2000 (Technical Report Series. No.894).

6-Azizi F. *Tehran Lipid and Glucose Study. The final report of first phase*. 1 st ed. Tehran, Endocrine Research Center, 2001.

7- Hu F B. Diet, Lifestyle, and risk of type 2 diabetes mellitus in women. *New England J of M,* 2001, 345:790-97.

8-Baecke JAH et al. A short quationnaire for the measurement of habitual physical activity in epidemiological studies.*The American J of Clini Nut*, 1982, 36:936-42.

9- Choo V. WHO reassesses appropriate body-mass index for Asian populations. *Lancet,* 2002, 360 (9328): 235.

10-Kannel WB et al. Some health benefits of physical activity. The Framingham Study. *Arch Intern Med,* 1979, 139:857-61.

11- Slattery ML et al. Leisure time physical activity andcoronary heart disease death. The

US Railroad Study. *Circulation,* 1989, 79:3104-10.

12- Saidie M. The Association of leisure time physical activity, watching television, obesity & lipid profile in an Iranian population. *Pak J Med Sci*, 2005, 21:476-81.

13-Berlin JA et al. A meta-analysis of physical activity in the prevention of coronary heart disease. *Am J Epidemiol*, 1990, 132:612-27.

14- Paffenbarger RS et al. A natural history of athleticism and cardiovascular health. *JAMA,* 1984, 252:491-5.

15- Paffenbarger RS et al. Physical activity as an index of heart attack risk in college alumni. *Am J Epidemiol,* 1978, 108:161-75.

16- Wessel TR et al. Relationship of physical fitness vs body mass index with coronary artery disease and cardiovascular events in women. *JAMA,* 2004, 292 (10):1179-87.

17- Leon A et al. Physical activity and10.5-year mortality in the multiple risk factor intervention trial (MRFIT).*Int J Epidemiol*, 1991, 20:690-7.

18-Sundquist K et al.The long-term effect of physical activity on incidence of coronary heart disease: a 12-year follow-up study. *Prev Med*, 2005, 41 (1):219-25.

19-Haapanen-Niemi N et al.Body mass index, physical inactivity and low level of physical fitness as determinants of all-cause and cardiovascular disease mortality- 16 y follow up of middle –aged and elderly men and women. *Int J Obes Relat Metab Discord,* 2000, 24 (11): 1465-74.

20-Wong J et al. Trends in lifestyle cardiovascular risk factors in women: analysis from the Canadian National Population Health Survey. *Int J Nursing Studies.* 2002, 39: 229-242.

21- Wannamethee G et al. Physical activity and stroke in British middle-aged men. *BMJ,* 1992, 304:597-601.

22- Yu S et al. What level of physical activity protects against premature cardiovascular death? The Caerphilly study.*Heart,* 2003, 89:502-506.

23- Manson JE et al. A prospective study of walking as compared with vigorous exercise in the prevention of coronary heart disease in women.*NEJM*, 1999, 341:650-658.

24- *Diet, nutrition and the prevalence of chronic disease. Report of a Joint WHO/FAO expert consultation*. Geneva, World Health Organization, 2003 (Technical Report Series. No.916).

25-Sadeghi M et al. Prevalence of high blood pressure and its relation with cardiovascular risk factors. *The Journal of Qazvin Univ*, 2003, 26: 46-49.

26-Azizi F et al. Obesity and Cardiovascular Disease risk factors in Tehran adults: a population – based study. *Eastern Mediterranean Health Journal*, 2004, 10 (6):887-895.

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1950-2007: UNRWA Revisited.

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بسم الله الرحمن الرحيم

Palestinians of my generation probably remember visiting a United Nations Relief and Work Agency (UNRWA)[1] clinic for vaccination, check-ups, medical treatment or dental treatment. One need not have lived in a refugee camp to use UNRWA services. Those who have never lived in a refugee camp, may remember UNRWA paying fees to the private schools they attended in Lebanon, for example, in order for them to receive an education and for establishing UNRWA clinics for health and dental check-ups. My private secondary schooling in Beirut-Lebanon was paid for by UNRWA (I paid fees to be able to attend school and university in London-England).

The UNRWA was established in 1949 by the United Nations (UN) in response to the mass exodus of Palestinians in 1948, subsequent to the Zionist assault on Palestine. It was intended to provide three major services to displaced Palestinians; Healthcare, education, work and social welfare. The crisis faced by Palestinian people at the time made it essential to have a service that would replace the basic infrastructure that Palestinians lost. UNRWA started its operations in 1950 and to date continues its work in five geographical areas (operation fields): the West bank, Gaza, Jordan, Syria and Lebanon. During a recent visit to Amman in Jordan I met with Dr. Zuhair Al-Zu'bi, Chief Field Health Programme, UNRWA-Jordan, over a cup of coffee for a discussion about UNRWA healthcare services. I wanted to learn more about the services UNRWA health care offers and what needed to be done to optimise UNRWA's services to the Palestinian refugees.

Q1: Can you tell me, Dr. Zuhair, about UNRWA healthcare. A: 'UNRWA provides free comprehensive primary health care services that are intended to be similar to the health services provided by the country hosting Palestinian refugees. Palestinians who were living in Palestine between 1946 and 1948 and who were displaced from their homes because of the Palestinian-Israeli conflict are themselves eligible (as well as their descendents) for registration with UNRWA for services including healthcare'.

Q2: Would Palestinians who now hold other Citizenship(s) still qualify for UNRWA Healthcare services? A: 'Yes, technically speaking. Palestinians do not loose UNRWA services eligibility by acquiring other citizenships'.

Q3: How about Palestinians born outside Palestine and who hold other citizenship(s), would they qualify for UNRWA healthcare services? A: 'In principle, they qualify for UNRWA health services, should they choose to live in any of the areas where UNRWA operates as far as they are registered refugees '.

Q4: Would it be in their interest to register with UNRWA ? A: 'Yes, it would. This would preserve their rights as Palestinians'. Registration is available with UNRWA Jordan from 7:30 to 1:45 Saturday through Thursday.

Q5: What does a Palestinian refugee moving to Jordan need to do to use UNRWA healthcare services in Jordan? A: 'This person should advise us that s/he is moving to Jordan and disclose the UNRWA number and we will do the rest. We then issue a letter from this office requesting registration with UNRWA in Jordan'.

Q6: What if one does not remember one's UNRWA number? A: 'We can find it since records are now computerised'. UNRWA numbers were issued for Palestinians and their families (spouses and children) post-1949 and are kept on record in Austria!

Q7: Could I have a consultation with an UNRWA physician or obtain medicines whilst on visit in Jordan? A: 'No, the services are meant to be for residents and not for visitors'.

Q8: What services does UNRWA healthcare provide to Palestinians? A: ' Mainly comprehensive primary health care, including preventative and curative medical care services which are provided free of charge and selective secondary and tertiary health care (this services is partially subsidized), including rehabilitation. UNRWA preventive health care services include family planning and maternity (antenatal and postnatal) care, and school health services. UNRWA also offers free basic diagnostic services (including X-rays) and free essential medicines. We also provide some training for health care workers, participate in national health awareness campaigns, and maintain acceptable environmental health standards in refugee camps'.

Q9: What subspecialties does UNRWA offer? A: 'Almost all, including cardiology, (heart) vascular , ophthalmology and Gynaecology/ Obstetric subspecialties. We have 24 clinics in Jordan and a special arrangement with the Hussein Medical City in Amman'. UNRWA reimburses a small amount of the incurred cost. Health centres in Jordan operate from 7:30 to 13:45 for six days a week, Saturday through Thursday. The opening and closing times of the health centres varies from host country to host country. In Jordan we provide health services to1.9 million registered refugees, and during 2007 UNRWA health services provided 2 million consultations.

Q10: How about cancer treatment? A: 'That and renal dialysis we do not offer. However, cancer treatment is usually provided free of charge by the Ministry of Health in Jordan and renal dialysis is available through Jordan government hospitals'.

Q11: Does UNRWA have its own hospitals? A: 'No, but we have agreements with Jordanian hospitals for treating Palestinian patients through UNRWA. We used to (partially) reimburse patients for hospital treatment until October 2006. Patients used to pay the whole cost for hospital treatment and recover 75% of what they had paid from UNRWA. However, now we have direct agreements with (MoH) Jordanian hospitals whereby payments are made directly to the hospitals'.

Q12: Does UNRWA provide free dental treatment? A: 'Yes, it does for preventive and restorative (scaling, filling and extraction) '.

Q13: How extensive is the UNRWA Pharmacy? A: 'We provide all the medicines (generics) on the WHO essential medicines list'[2].

Essential medicines are the medicines that address the priority health care requirements of a given population. These medicines are selected through an evidence-based process with due regard to public health relevance, quality, safety, efficacy and comparative cost-effectiveness. UNRWA has a list of hundreds of essential drugs that are revised and updated every few years according to WHO recommendations. UNRWA Health services provided at our primary health care centres are free to all registered Palestine refugees. UNRWA does not sell medications.

Q14: Do you lack any items not present in the list? A: 'No, we buy everything we need, including non-catalogued items'.

That sounded all too well, but I wanted to sample opinions of Palestinians who use UNRWA healthcare services. I asked a Palestinian woman who lives in Amman about the quality of services UNRWA healthcare provides and she said: 'They tell you they have all the necessary medicines at UNRWA but it is a regular occurrence to go to the UNRWA pharmacy only to realise that it has run out of essential medicines, so one ends up having pay money to buy them from private pharmacies in Amman and medicines are expensive. It also takes a long time to see a physician'. I asked a Palestinian man living in Amman who takes tablets for type II diabetes about UNRWA and he said: 'I can find the medicines I need at UNRWA and it's free. It would cost a fortune to buy them from a pharmacy in Jordan. My wife has to buy her medicines though, because UNRWA would not register her for the service, even though she is Palestinian, since we could not demonstrate she or her parents had refugee status in the fifties'. I further sampled some opinions from Palestinians who live in Beirut. One Palestinian man who lives in Beirut said: 'I take blood pressure (antihypertensive) tablets and often when I call for a repeat prescription at the UNRWA pharmacy in Beirut they tell me they have run out of the medicine I need, so I end up having to buy it from private pharmacies in Beirut and it is very expensive. Last time I had someone bring it to me from Turkey, because it is cheaper over there'. A Palestinian woman who lived in Beirut since 1948 said: 'UNRWA does not provide the Asthma medication I take. I pay for private consultations myself and constantly pay for medicines I need for my asthma. My husband needed a blood transfusion when he was ill with a bleeding condition, but could not find a blood donor through UNRWA'. Another Palestinian woman who lives in Beirut said: 'UNRWA does not pay the full cost for heart surgery. My husband had to personally raise 8000 USD to have Coronary Heart Surgery in a private Lebanese hospital, because this service is not provided by UNRWA and the Lebanese do not subsidise treatment for Palestinians. UNRWA paid only 1000 USD and we had to find the rest'.

I communicated some of these concerns to Dr. Zuhair who said: 'Medication should be available to dispense to patients at all times. Every Palestinian qualifies for UNRWA healthcare services, as long as they can demonstrate they were made refugees. Registration with UNRWA is not means tested. In Jordan we subcontract with national (MoH) hospitals to provide Palestinians with the in patient services they need, including surgery, and meet 75% of the cost. Lebanon seems to be lagging in terms of the services it provide'.

Q15: What was UNRWA's total budget for this year? A: '360 million USD in 2005, 68 million USD was the share for UNRWA healthcare in all five fields of

operation'. UNRWA's regular budget for 2007 is expected to be 394.6 million USD of which 328.2 million USD is the anticipated expenditure for staff costs. The funding excess (shortfall) for 2007 is expected to be 2.6 million USD[1].

Q16: If I ask you now what UNRWA lacks, what would you say? A: 'We could do with more laboratory equipment and additional human resources'.

Q17: Who is the head of UNRWA. A: 'Karen Abu Zayd. She does a good job'

Q18: Is she Palestinian? A: 'No, American'.

Karen Konning-Abu Zayd, who is married to a Sudanese professor, became Commissioner General of UNRWA in 2005.

Q19: Has there ever been a Palestinian that headed UNRWA since it started in 1949? A: 'No'.

I bid Dr. Zuhair and staff on the floor farewell and went on to UNRWA headquarters in Amman to meet with Dr. Ali Khader, Reproductive Health Officer, UNRWA-Jordan. I was given a copy of the 2005 UNRWA Annual Report of the Health Department to read. I asked Dr. Ali over a second cup of Arabic coffee some questions about UNRWA in general.

Q20: What are the education standards in UNRWA schools like? I attended private schools in Beirut and then in London. A: 'Students can go through UNRWA schools and receive a good education and subsequently do well. I received my education in UNRWA schools and attended UNRWA health centres and now work for UNRWA'.

Q21: What would you say about UNRWA in general? A: 'It is one of the good organisations looking after the well-being of Palestinians. It provides essential services to many Palestinians and its staff are dedicated'.

Q22: Does UNRWA have universities or research institutes? A: 'UNRWA only has teacher training programmes and vocational training centres, but does sometimes support students for higher education when it receives funds'. Budgetary constraints forced the Agency to discontinue the scholarship programme it previously supported from the general fund of contributions in 1997/1998[1].

Al-Teereh College in Ramallah educates Palestinian girls to be teachers, nurses and other disciplines such as housekeeping, hairdressing, etc.

Q23: Does UNRWA conduct medical (e.g. biomedical) research? A: 'No. In fact we used to conduct operational and field research to monitor the health status of refugees in addition to making the necessary program management and adjustment '.

Q24: Is *in vitro* fertilisation was available to married Palestinian couples through UNRWA? A: 'No this service is not available'.

Q25: Would you recommend the new generation of Palestinians, who were born in Britain, for example, and who hold UK citizenships to register with UNRWA? A: ' Yes this is the only means for them to preserve their status and rights as Palestine refugees '.

Q26: Can you tell me about some of the difficulties UNRWA is facing? A: 'Some voices are calling for its abolition[3], arguing it is no longer needed now that there are talks for a peace settlement. However, its role in supporting and building peace is obvious. Funding is another issue, not every country is honouring its commitment to UNRWA. Scandinavian countries tend to be the best donors, unlike Arab countries. There are organisations that support UNRWA such as the US Friends of UNRWA[5] and the UNRWA Spanish Committee[6], which are very supportive'.

I concluded my meeting with Dr. Ali, but still had many questions going through my mind. Why is it that UNRWA does not have hospitals, universities and research institutions? Most of its money seems to go towards staff costs rather than reach the hands of Palestinian refugees. What happened to the wealth of Palestinians? Surely, this is what in reality is paying for organisations like UNRWA and not donor states.

Further questions (suggested by peer-reviewers) were later put to Dr. Ishtaiwi Abu-Zayed, who succeeded Dr. Zuhair Al-Zu'bi and is currently Chief Field Health Programme, UNRWA-Jordan.

Q27: Can you tell me about future plans to improve the UNRWA services? A: 'UNRWA is dependant on donations from donors and therefore the implementation of future plans is dependant on the availability of funds. However our long term strategy to improve UNRWA Health Services includes: **(1)** Improving the infrastructure through extension and renovation of some health centers. **(2)** Recruitment of additional health staff members. **(3)** Building the capacity of health staff members. **(4)** Improving access to health services by building new health centers in remote areas were some refugees have problems with accessibility. **(5)** Modernization of medical equipments. **(6)** Automation of laboratory services. **(7)** Provision of growth and monitoring services for children from 0-5 years age instead of the present one that covers children from 0-3 years old. **(8)** Mechanization of refuse removal from camps'.

Q28: What is the expected growth rate and how will UNRWA handle it? A: 'The estimated population growth rate based on the UNRWA registration system, which is voluntary, is 2.3%. This growth in population will have an impact on the UNRWA Health Programme, as health services are already very stretched to accommodate the current refugee population. Only through an increase in resources (both financial and human) will the UNRWA Health Programme be able to manage the added responsibility of servicing more refugees'.

Q29: Does UNRWA they provide food? A: 'Food aid is coordinated through UNRWA's Relief and Social Services Programme. Food rations are distributed to refugees in the special hardship case category on a bi-monthly basis at special UNRWA distribution centers. The value of this relief assistance is about US$136 per person annually, and most of it is received as in-kind donations from donor governments in the form of basic foodstuffs such as flour, rice, sugar, milk and cooking oil. Quality control is carried out at the Agency field offices to ensure that the

commodities meet the right specifications and are properly stored and handled. As part of its emergency relief activities in the West Bank and Gaza since September 2000 UNRWA has greatly increased its provision of food aid – for example prior to 2002 UNRWA distributed food to 11,000 refugee families. However, it is now targeting almost 220,000 families across the West Bank and Gaza. By September 2002 UNRWA had distributed 1.5 million food parcels. These typically contain 50kg of flour, five kg of rice, five kg of sugar, two liters of cooking oil, one kilogram of powdered milk and five kilograms of lentil'.

Q29: Why doesn't UNRWA establish some institutions or companies that may produce benefits and generate some profit? A: 'UNRWA is not a private sector organization; therefore it is not in the business of profiting from assisting the Palestine refugees'.

Q30: Will UNRWA establish medical school(s) in its fields of operations to educate Palestinians to degree level in Medicine and related subjects? A: 'Medical schools are very specialized schools and they are out of the scope of UNRWA mandate'.

Q31: Does UNRWA advice Palestinian students on where best to study medicine and/or related subjects? A: 'As UNRWA only educates to high school level (with the exception of Lebanon where secondary schooling is offered), it is often through the Host Country schooling system that Palestinian students receive advice on graduate study programmes'.

UNRWA was established by the UN to ensure the well-being of Palestinians who lost much of their country's infrastructure. Generally, the healthcare sector filled a big gap in meeting the health needs of Palestinian refugees[6], but not enough in my view. A recent evaluation of UNRWA healthcare service by a WHO committee concluded that the organisation provides a satisfactory and important service to Palestinian refugees, yet highlighted some shortcomings in services offered in the Labanon[7]. For instance, Palestinians of the Lebanon requiring heart surgery would only receive $1500 towards a cost of surgery of around $6000. The report highlighted key areas where improvisation of UNRWA services would have a positive impact on the healthcare of Palestinian refugees.

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References:

1. www.unrwa.org .
2. http://www.who.int/entity/medicines/publications/EML15.pdf and http://www.who.int/mediacentre/factsheets/fs325/en/ .
3. http://www.cdn-friends-icej.ca/un/a_unrwa.html .
4. http://www.friendsunrwa.org/index.html .
5. http://www.friendsunrwa.org/index.html .
6. UNRWA, Annual Report of the department of Health, 2005.
7. http://www.emro.who.int/docf/who_em_dhs_001_e_en.pdf .

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Commentary

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Nursing Practice and education in Palestine

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Nursing is a dynamic field, the practice of which is continually evolving to include more sophisticated patient care activities. Whenever we try to define "nursing", we find that any definition will be restrictive to this profession. In 1859 Florence Nightingale wrote: "the elements of nursing are all but unknown".

Nursing is the use of clinical judgment in the provision of care to enable people to improve, maintain, or recover health, to cope with health problems, and to achieve the best possible quality of life, whatever their disease or disability, until death.

Nursing is experienced at some time by almost everybody; it is done by millions of nurses world wide. Yet it is difficult to describe. The purpose of nursing is to promote health, healing, growth and development, and to prevent disease, illness, and disability. It also aims at minimizing distress and suffering, and to enable people to understand and cope with their disease or disability and its treatment and consequences. Nursing interventions are mainly concerned with empowering people.

Nursing practice involves intellectual, physical, emotional, and moral process which includes identification of nursing needs, education, advice, teaching and knowledge development, and physical, emotional, and spiritual support.

The focus of nursing is on the whole person, it believes in the holistic view. Nursing is based on ethical values which respect the dignity, autonomy, and uniqueness of humans. These values are expressed in written codes and ethics, and supported by regulations. Nurses work with partnership with patients and their relatives and in collaboration with other member of the multi-disciplinary team.

The need for medical care will always increase exponentially. As the expected life span for humans increase, chronic diseases will increase, and the costs of health care will rise accordingly.

The nurses in the current practice are aging and will approach retirement which will result in inflating the currently present need for nurses. This shortage of nurses is expected to increase over the coming years world wide. This shortage of nurses is causing hospitals and health facilities to compete for nurses.

Nursing practice in Palestine is in decline. Many reasons could be cited for this, among which are reasons related to the practice of nursing profession itself, other reasons are due to the special situation that nursing in Palestine has.

As for the problems related to nursing profession, many can be mentioned, below are some of those:

- Nurses are burdened by the too many patients, work environment, and the too much paper work.

- Nurses are not recognized as valuable professionals

- Nurses have very little authority which frustrates them

- Nurses are subject to physical, emotional, and verbal abuse by patients and co-workers.

- Most nurses are women who are responsible for their jobs and for the house-related responsibilities.

- Demographic changes and immigration require nurses to elevate and vary their knowledge and skills

Beside all the previously mentioned problems, nursing practice in Palestine has its own problems, among which are:

a- There is no agreed upon definition for the practice of nursing in Palestine which leads to overlapping with other medical professions.
b- No recognition from administrators or co-workers for the outstanding nurses which causes frustration and disappointment.
c- Immigration of qualified nurses to work abroad for safer working environment and better salaries and benefits
d- Continuously, the quality of health services is declining which leads to people losing trust in it.
e- No laws are out there to necessitate recertification for nurses or continuous medical education. This has led to nurses not getting any education after graduation.
f- Lack of specialized nurses in almost all branches of nursing practice
g- Continuously increasing demands and expectations of the public regarding the quality of care and the commitment to nursing ethics.
h- Health care reform requires high quality nursing education as well as directing nursing practice toward society needs. This is not available currently.
i- Nurses do not get continuous training and educations, while the change in disease patterns and the occurrence of new diseases requires the nurses to continuously update themselves with new guidelines
j- Technology has provided new methods for diagnosis and treatment of illnesses; nurses in Palestine are not being updated regarding such techniques, and computer-based equipments.

Suggested methods to solve the above problems include increasing the number of qualified nurses, improving the quality of nursing care which will help in changing the negative public opinion about nursing. Establishing an agency to assure the quality of nursing care. Practicing nurses should be enrolled in continuing education programs and should provide them with learning resources and continuous training. This will require the government to increase the funds allocated for health.

It is important for nurses to be satisfied while practicing their job. This requires maintaining safe and comfortable working environment, giving nurses part in decision making, adhering to the nursing job description, provide promotions in order to keep qualified nurses in Palestine. Efforts should be made to assure occupational safety for nurses as well.

Previous paragraphs described the problems facing nursing practice in general, and also the problems that face nurses in Palestine in particular. The other major obstacle for nurses is related to nursing education. The major recognized problems are summarized below:

a- Declining level of education in general in Palestine which is reflected on students' quality and on nursing education.
b- Presence of different educational systems which had led to varying knowledge and skills possessed by nursing graduates.
c- There is a clear shortage in nursing faculty in Palestine and the ones who are present lack education or clinical skills.

d- Most nursing schools still use old fashioned teaching methods
e- Existing hospitals are not suitable for the clinical training of nursing students because of the inability to practice at hospitals what they have learned in classes.
f- Shortage of many medical sub-specialties at the hospitals which leads to improper management of disease conditions and consequently more burden on the health care providers.

To solve the above problems regarding education, the following must be done:

a- Adopting the WHO guidelines for nursing curriculum
b- Establishing nursing colleges according to high international standards and providing programs that award degrees in nursing specialties
c- Encouraging clinical nursing research
d- Upgrading teaching methods and establishing modern methods such as self-education
e- Adopting trusted evaluation tools
f- Improving communication skills.

As a method to solve part of the previously mentioned problems, An-Najah National University has established the College of Nursing two years ago. This college provides a curriculum that grants the Bachelor degree of nursing and it requires four years to complete all the credit hours required for graduation.

We do have about 150 students at the college currently. Our students get their courses at the university and then get their training at the hospitals. There is a great shortage of educated qualified nurses in Palestine; this affects the practice and education of nursing. This is the reason that made us ask for volunteer nurses who can participate in teaching and/or training of our students.

Volunteers need to have a license to practice nursing (American or European license), or they need to have a master or PhD degree in nursing. Such volunteers will help both in practical training of our students and in course material education. They can join us anytime during the academic year, i.e. from September 2006 until May 2007. Specialized nurses are needed to participate in teaching the following courses:

a- medical surgical nursing

b- critical care nursing

c- maternity care nursing

d- pediatric nursing

e- mental health nursing

f- ethics of nursing

g- fundamentals of nursing

h- pharmacology for nurses

i- microbiology for nurses

j- pathology for nurses

k- Nursing research

Interested volunteers can contact us at one of the following emails:
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Infant Feeding in Gaza Strip: Mother Knowledge, Attitudes and Practices.

Abstract:

A clinic-based study conducted in Gaza strip, surveyed 268 mothers of infants aged 2-24 months old in five governmental clinics for breast-feeding habits of their children. The children were selected during the day of receiving vaccination or during visiting for other reasons such as when visiting clinics for follow-up appointments or for receiving tonics.
Information was collected with regards to the feeding behavior of the youngest child. The data collection instrument was a self-designed semi-structural questionnaire. *Results showed that the frequency of breast-feeding at some point of time was more than 92%, exclusive breast-feeding reached 38%.* Eighty five percent (85%) of the mothers had been informed about the importance of breast-feeding. *Conducive environment for breast-feeding at home was demonstrated through the support of surrounding people especially the grandmothers. Health system is still insufficiently supportive of breast-feeding practices since the prevalence of mothers had received support and advice from physicians and nurses post labor was 43%.* The main source of information about breast-feeding was through primary health care practitioners and health education. Media represented 22% of the average of information sources. The results also showed that 46% of infants were breast-fed for less than one year.

The study also found that 13% of the mothers were not interested in feeding colostrums. More than 26% had introduced solid foods before the age of 4 months. *Mother's attitudes regarding the early introduction of infant formula reached almost 70% of the surveyed mothers. The reasons mentioned were that this might calm down the infants (38%) and reduce neonatal jaundice (32.5%).* The survey showed that there was a tendency to introduce solid foods both early on and late and this was significantly related to the level of awareness and duration of breast-feeding.

Keywords: Breast-feeding, socioeconomic status (SES), knowledge attitudes practice (KAP).

Introduction:

Breast-feeding is critical for sustaining new born and infant health and well-being. Infants who are properly breast-fed grow better and experience less sickness and fewer deaths than other infants who are not breast-fed. Breast-feeding is reported to save six million infant lives each year by preventing diarrhea and acute respiratory infection (1). The prevalence of breast-feeding differs from one country to another and from one society to another, this of course is due to cultural and religious believes.
Exclusive breast-feeding rates were low in the United States with only 7.9% at 6-months (2). A study titled "Breast-feeding in Europe—rationale and prevalence, challenges and possibilities for promotion" recorded vast differences in the prevalence of breast-feeding duration between EU

countries and possibly within countries (3). The prevalence of breast feeding was higher among Arab communities where 46% of the infants are breast-fed for 4-6 month in Emirates (4). *In contrast a USA study showed that only 20% of the low income rural mothers in southeastern Kentucky practiced breast-feeding for babies of the same age* (5). In Saudi Arabia, 48.3% of lactating mothers cited insufficient milk as a reasons for introducing the bottle feeding by 3-month (6). *Breast-feeding mothers need additional support to continue breast-feeding beyond the first month. Mothers and grandmothers need education to discourage the practice of early introduction of inappropriate solid foods, including the practice of thickening bottles of formula with cereal. Nutrition teaching should be provided to mothers and grandmothers including how to select high nutrients, low fat weaning food, and limiting infant intake of high calorie intake(5).*
The recorded (at any time) prevalence of breast-feeding in the Palestinian community was 95% but exclusive breast-feeding reached 13% at 3 month. *Despite of the high prevalence of breast-feeding practices in Gaza strip it seems that inappropriate feeding practices with regards to early and late introduction of solid food is still high. The continuity of breast-feeding practices after one year decreased to less than 50%* (8).
The aim of this study was to test the knowledge, attitudes and practices of breast-feeding among mothers in Gaza strip.

The study further seeks to evaluate the current health *system with regards to breas*t-feeding practices in Gaza. The recommendation should enable the health providers to build better awareness programs and decision makers to modify current health care system to improve support of breast-feeding.

Methods:

This is a cross –sectional clinic- based study; targeting 268 mothers who had been present on the day of the study at the primary health center (PHC). *The sample size was determined according to many criteria especially the rarity of variables under study and the population size, and since this is a KAP study, homogeneity of the variables is expected and so a high sample size is not a must. The mothers selected for interview were ones visiting the PHC to vaccinate their healthy non sick children. The interviewers asked the mothers to answer the questions of the survey immediately after vaccinating their children; all selected mothers were chosen on convenient bases. The study covered five governmental clinics selected purposively through three* localities of the Gaza strip including North, Gaza city and South.
The data collection instrument was a semi – structured questionnaire composed of 43 questions (in Arabic) "delivered directly through face to face interview" the questionnaire included the following determinants:

- Personal information ", demographic data"
- Level of mother knowledge.
- The attitude of the mothers regarding breast-feeding.
- Behavioral aspects.
- *Level of information and support provided by the health care providers as part of provision of health care.*

The questionnaire was revised by a nutritionist and pediatricians interested in Breast-feeding for evaluating its validity. A pilot study was performed prior to the real study

and all the modifications and changes necessary were taken into our consideration.

Mothers were asked to answer questions through the support of 10 trained health educators who played the role of interviewers, after obtaining oral approval and completing clarifications about the purpose of the study. *Health educators were staff of the MOH and were neutral in terms of their administrative loyalty, but at the same time they as also had strong commitments towards the support of breast-feeding. Therefore, the level of interviewer bias was very limited.* Data were filtered and introduced to computer database and then analyzed by SPSS version 13.

Results

Participant characteristics:

Among the 268 mothers, the average the age of the participating mothers was 28 years, 3.7% of the mothers was less than 19 years old (Table 1). Almost 57% of the participating mothers had a family income of less than US$ 400 with a median income of US$280. *Sex of the children of the mothers under study was found to be evenly distributed; almost fifty percent were males and fifty percent females*. About 56% of the mothers in the study were from Gaza City, 26.9 % and 17.5% from North and South respectively.

Table (1): Distribution of mother's age in the study area

	Area			**Total**	
Age	North	Gaza city	South	N0	%
Less than 19 years	3 (%4.2)	7 (4.7%	(0).0%	10	3.7
19-25 years	19 (26.4%)	45 (30.2)	5 (10.8)	69	25.7
26-30	29 (40.3)	57 (38.3)	15 (31.9)	101	37.7
More than 30 years old	21 (29.2)	40 (26.8)	27 (57.4)	88	33
Mothers education for more than 13 years	**33**	**83**	**19**	**135**	**50.9**

Children characteristics:

Among the 268 surveyed children, the average age was 12.5 months; only 10.7% of the children were less than 6 months old Table(2).

Table (2): Distribution of the children's age

Age	*No.*	*%*
Less than 6 months	*29*	*(10.7)*
6-12 months	*78*	*(26.8)*
More than one year	*161*	*(59.4)*
Total	***268***	***(100)***

Type of feeding by socioeconomic and maternal characteristics:

Out of the 268 interviewed mothers, 169 lactating mothers (63.4%) were fully breast-feeders, 29.1% were mixed breast feeders and 7.5% practiced infant formula milk. This data was derived during the day of the study.

Of the full breast-feeding group 33 lactating mothers (32%) did so for 6-12 months and 70 mothers (68%) of continued breastfeeding for more than one year. About 39% of all mothers in this study mentioned that artificial feeding had at least one advantage: it made children more satisfied. Almost all the population recorded at least one benefit for breast-feeding.

Knowledge Attitudes and Practices of Breast Feeding:

Table 3: Feeding knowledge attitudes and practice for breast feeding

Item	**No.**	**%**
Mothers informed about the importance of breast feeding.	229	85.4
Mothers know more than three advantages of breast feeding	184	68.7
Mothers that consider crying as a major sign of hunger.	227	84.7
Mothers who considered the following as a very important means for milk production: Drinking more water Eating special food	 90 104	 33.6 38.8
Source of infant feeding information: Health educators and HCP in PHC Media Retail pharmacy	 139 59 10	 52 22 3.7
Mothers that received support and advice from physician and nurses	*116*	*43.3*
Mothers that delivered (gave birth) in the hospital	224	83.6
Mothers that started breast-feeding during one hour post delivery	210	78.4
Mothers that initiated breast-feeding at some point post delivery	248	92.5
Exclusive breast-feeding (less than 6 month).	103	38.4
Feeling of satisfaction with breast-feeding.	191	71.3
Mothers who gave pacifier	57	21.3
Mothers not interesting in feeding colostrums	34	12.7
Mothers that scheduled their feeding	59	22
Mothers receiving breast-feeding support and advice at home especially from the grandmothers	*111*	41.4
Mothers that think hospital staff are not supportive for breast-feeding	84	31.5
Mothers that did not encounter any problems during breast-feeding	187	70
Mothers that introduced solid food before 4-month	70	26
Mothers who thought that early introduction of infant milk might help in reducing jaundice.	87	32.5
Sickness of the mothers and infants refusal of the breast as the reason why mothers introduced formula milk among non breastfed	*14*	*63.6*
Mother practicing a rooming in-policy (in the same) room	235	87.7
Mothers who received medical sample from the medical representatives during hospital stay	34	12.7
Mothers who continued breast feeding for more than one year	145	54
Babies who do not take iron supplement.	80	29.9

Table (4) Relation of family income& mothers working with type of breast- feeding

Family income US$	*Type of feeding*				P-value
	Breast feeding	*Artificial*	*Mixed*	*Total*	
Less than 200	*49*	*7*	*15*	*71*	*0.25*
201-400	*54*	*5*	*22*	*81*	
401-700	*41*	*3*	*22*	*66*	
701 and more	***25***	***5***	***20***	***50***	
Total	***169***	***20***	***79***	***268***	
Mothers working					
Yes	36(21.3%)	6 (30%)	35 (44.3%)	***77***	< 0.001
No	133 (78.7%)	14 (70%)	44 (55.7%)	***191***	
Total	***169***	***20***	***79***	***268***	

Discussion

The culture of the Gaza strip is very supportive to breast-feeding since people especially the aged grandmothers provide a culture that encourages breast-feeding.

More than 111 mothers (41%) mentioned that they received support and advice from their families especially grandmothers. These findings are similar to those from a study done in Bristol, UK where grandmothers seemed to influence and promote the practice of breast- feeding (9) This cross-sectional study demonstrated an initiation rate of breast feeding of almost 92.5% of all the mothers at some point. These rates are higher than those reported in USA and Jordan for the same age range (2, 10) respectively.

Breast-feeding behaviors were not far from optimal since 78.4% of mothers sampled initiated breast-feeding during the first hour after birth. *In two separate surveys both in Urban populations of Western Nepal and Lebanon the rate of Breast feeding initiation during the first hour were 72.7% and 55.9 respectively(11,12)*

In comparison to *other similar studies*, 62% did not exclusively breast-feed their babies. *Findings among Saudi mothers showed a low prevalence of exclusive breast-feeding (27.3%). In Lebanon the prevalence was 52% at the 1 month* (13, 12).

In the Gaza Strip this study revealed that less educated mothers' were *not more likely* to breast-feed their babies. This is in contrast to results from Jordan where less educated women were more likely to breastfeed than women of higher education level (10). The lack of relationship between education and breast-feeding behavior in Gaza strip were mostly due to positive attitudes cultural values rather than educational influences.

The present study showed that 12.7% of the lactating mothers refused to give colostrums to their babies. In comparison, a Saudi study by AL-Jaseeir *et al* in 2006 and a study in Central Karnataka in 1996 by Banapurmath *et al* showed that mothers who refused to give colostrums were 8% and 29% respectively (14,6). We consider such practices to have been highly affected by the level of misconceptions

prevailing among the grandmothers of the lactating mothers towards using colostrums.

The findings of this study showed that 22% of the lactating mothers schedule the feeding times of their babies. A similar study in India showed that 36.6% of lactating mothers fed their babies on demand (1). The present study showed a strong association between the level of mother's education and awareness and the feeding on demand in Gaza.

Twenty six percent of mothers introduced solid foods before the age of 4 months, the majority of them did so at the age of three month.

Out of those giving artificial formula the main reason behind this practice was child refusal and/or mother illness (63.6% of total). Thirty seven percent of the study population had positive attitudes towards artificial milk indicating a need to change negative attitudes to breast-feeding. This somewhat high percent of positive attitude may be linked to the strong influence of the anti breast-feeding marketing campaigns by the medical representatives. No similar studies matched this data since a study in Jordan showed that 33% of the study population introduced infants to formula milk as a result of lack or insufficient breast milk (10).

Working of the mothers still plays a role in generating negativity towards exclusive breast-feeding practices in Gaza.

This finding is consistent with other studies that proposes mother working outside the home as one of the greatest hindrances to exclusive breast feeding.

Perez-Escamilla and colleagues found that mothers in Brazil, Honduras, and Mexico who were not employed outside their homes were significantly more likely to exclusively breast-feed their babies (15, 16). In Thailand, not working outside homes was the single most important predictor of exclusive breast-feeding by mothers (17).

Unlike other studies, however, our findings do not provide convincing evidence that social class, measured by family income, maternal education and mothers' age significantly affect the prevalence of exclusive breast-feeding. Studies by Nath in 1997 and Perez-Escamilla in 1995 documented lower rates of exclusive breast-feeding among women of higher income and social class (18, 15). The lack of relationship between education, socio-economic status and the exclusive breast-feeding behavior in Gaza strip are mostly due to positive attitudes and cultural values towards breast-feeding rather than other influences. *Similar findings were observed by the study of Hossain* and colleagues *"Breastfeeding in Egypt", where maternal education seemed to play a non significant role in breast-feeding practices. Meanwhile a significant relation was observed among mothers of high socioeconomic status since they tended to terminate breast- feeding earlier (19).*

Giugliani and colleagues in 1994 reported that young American mothers were less likely to exclusively breast-feed, a finding substantiated in a three country study (20). A separate study in Mexico by Perez Escamilla in 1993 pointed to social support and mothers' awareness as major determinants of exclusive breast-feeding (16).

The present study examined few common risk factors underlying failure of breast-feeding practices such as attitudes towards artificial milk, lack of hospital conducive environment and violation of breast feeding through the non compliance of the code of breast

milk substitute. The code aims to contribute to the provision of safe and adequate nutrition for infants, through protection and promotion of breast-feeding, and through ensuring the proper use of breast milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution (21).

Consequently, efforts to improve breast-feeding need to include a variety of strategies. One of the major strategic components is the support of the early initiation of breast-feeding in the first hour since this was strongly associated with the duration and continuity of breast-feeding after the first year (22).

Efforts to improve early initiation and exclusive breast-feeding should be targeted first towards staff in public and private hospitals to support and strengthen the baby-friendly hospital initiative. This was observed during our study since 43.3% of the mothers mentioned that they received breast-feeding support and advice from their physician and nurses immediately after delivery. However, this figure remains belo the satisfactory level. The reason behind this might be heavy physician workload since more than 1000 mothers give birth monthly in large hospitals in the Gaza Strip such As Shifa Hospital (23). Other factors might be lack of conducive and supporting system.

Conclusions and Recommendations

We conclude that many of the mothers have a good knowledge and positive attitudes towards breast feeding. However, appropriate practice of breast feeding is still influenced by factors such as the health care system and the social support. Despite that prevalence of practicing breast-feeding at birth reaches a high of 92.5%, only 38% progress to exclusive breast- feed till the age of 6 month. Among the socio-cultural factors, only mother's working outside home was significantly correlated with the type of feeding. Effort is needed to monitor, evaluate and strengthen the effectiveness of health education programmers. Early identification for any breast milk code violation should be stressed. National strategic components for the support of breast-feeding in terms of early initiation during the first hour, implementing the baby-friendly hospital initiatives, and implementing of the international code of marketing of breast milk substitute are strongly recommended.

References

[1] John, R. (2005): Knowledge, attitude and practice of Employed mothers About Breast feeding. Nursing Journal of India, Apr; 96(4):85-6.

[2] Li,R:Zhao,Z;Mokdad,A;Barker,L; and Grummer-Strawn,L.(2003). Prevalence of breast feeding in the United States: the 2001 National Immunization Survey. Pediatrics, 111(5 part 2):1198-201.

[3] Yngve, A; Kylberg, E; and Sjostrom, M. (2001): Breast feeding in Europe rationale and prevalence, challenges and possibilities for promotion. Public Health Nutrition, 4(6A):1353-5.

[4] Osman,N.A; and El-Sabban,F.F. (1999). Infant-feeding practices in Al-Ain, United Arab Emirates. East Mediterranean Health Journal, 5(1):103-10.

[5] Barton, SJ. (2001): Infant feeding practices of low income rural mothers. American Journal of Maternal and Child Nursing, Mar-Apr; 26(2):93-7.

.

[6] Al-Jassir, M.S; El-Bashir, B.M; Moizuddin, S.K; and Abu-Nayan, A.A. (2006). Infant feeding in Saudi Arabia:

mothers attitudes and practices. East Mediterranean Health Journal, 12(1-2):6-13.

[7] Woldegebriel, A. (2002): Mothers knowledge and belief on breast feeding, Ethiopian Medical Journal, Oct; 40(4):365-74.

[8] Maram Project Survey of Women and Child Health and Health Services in the West Bank and Gaza Strip (2003).U.S Agency for international development (USAID)/WBG.

[9] Ingram, J; Johnson, D; and Hamed, N (2003): South Asian grandmothers influence on breast feeding in Bristol, Midwifery: Des; 19(4):318-27.

[10] Khassawneh, M; Khader, Y; Amarin, Z; and Alkafajel, A. (2006): Knowledge, attitude and practice of breastfeeding in the north of Jordan: a cross-sectional study. International breast feeding journal, 10.1186/1746-4358-1-17.

[11] Chandrashekhar, TS; Joshi, HS; Binu, V; Shanker, PR; Rana, MS; and Ramachandran, U. (2007): Breast-feeding initiation and determinants of exclusive breast- feeding – a questionnaire survey in an urban population of western Nepal, Public Health Nutrition: Feb; 10(2):192-7.

[12] Bata, M; Boulghourjian, C; Abdallah, A; and Afifi R (2006): Breast-feeding and feeding practices of infants in a developing country: a national survey in Lebanon, Public Health Nutrition, May; 9(3)313-9.

[13] Ogbeide, DO; Siddiqui, S; Al Khalifa, IM and Karim, A (2004): Breast feeding in Saudi Arabian Community. Profile of parents and influencing factors, Saudi Medical Journal, May; 25(5):580-4.

[14] Banapurmath, C.R; Nagaraj, M.C; Banapurmath, S; and Kesaree, N. (1996).Breast feeding practices in villages of central Karnataka. Indian Pediatric. Jun; 33(6):477-9.

[15] Perez-Escamilla,R;Lutter,C;Segall, A; Rivera,A;Trevino-Siller,S; and Sanghvi,T.(1995):Exclusive breast-feeding duration is associated with attitudinal, socioeconomic and biocultural determinants in three Latin America countries. J Nutr, 125(12):2972-2984.

[16] Perez-Escamilla,R;Segura-Millan,S; Pollit,E; and Dewey,K. (1993): Determinants of lactation performance across time in an urban population from Mexico.Soc Sci Med,37(8):1069-1078.

[17] Li,Y; Kong, L; Hotta,M; Wongkhomthong, S; and Ushijima,H.(1999):Breast feeding in Bangkok,Thailand:current status, maternal Knowledge, attitude and social support. Pediatr int, 41(6):648-654.

[18] Nath, D; and Goswami, G. (1997): Determinants of breast feeding patterns in an urban society of India. Human Biol, 69:557-573.

[19] Hossain, MM; Reves, RR; Radwan MM; Arafa, SA; Habib, M and Dupont, HL (1994): Breast feeding in Egypt, J R Soc Health, Des; 114(6):290-6.

[20] Giugliani,E;Caiaffa,W; Vogelhut,J; Witter,F;and Perman,J.(1994):Effect of breastfeeding support from different sources on mothers decisions to breastfeed. J Hum Lact, 10(3):157-161.

[21] World Health Organization (WHO) 1981: international code of marketing of breast milk substitutes.

[22] World Health Organization (WHO) 2003: Global strategies for infant and young child feeding.

[23] Ministry Of Health (MOH)-Palestine Annual Report 2005.

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