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An outbreak of Hepatitis A in Jizan, 2002.

On 14th March, 2002 (1st Moharram, 1423) the General Health Directorate of Jizan reported an increase in the number of children suffering from hepatitis A in a locality near Jizan. In response, a team from FETP was assigned to investigate this outbreak.

All the cases had appeared in three neighboring villages: Mehlia, Omeriah and Khradla. Since there had been no recent change in the environmental and other epidemiological factors indicating the cause of this outbreak, other factors that could explain this local upsurge of disease were investigated. There was no community water supply in the area and people mainly depended on water tankers for their water needs. Otherwise, few households used bottled mineral water for drinking or household-wells for non-drinking purposes.

After assessment of the distribution of disease, a case control study was conducted to identify the risk factors. A case was defined as any person living in the catchment area of Mehlia Primary Health Care Centre and diagnosed as suffering from Hepatitis A clinically and /or confirmed by laboratory tests, since 1st December 2001. Neighborhood controls were defined as any child who lived in the same area, below 15 years of age who did not suffer from Hepatitis A clinically since 1st December 2001; confirmed by serological examination .

A structured data collection form was designed containing information on demographic data, previous history of jaundice, presence or absence of signs and symptoms of hepatitis, possible risk factors; such as personal hygiene, eating habits and history of contact with a known case. A list of the reported cases was finalized and each case was interviewed, at times with the assistance of the mother, father or an older family member. A blood sample was drawn to test for anti HAV IgM antibodies. Neighbourhood controls were recruited following the same procedure. Blood samples were sent to the laboratory of King Fahd Hospital, Jizan.

A total of 63 cases were identified. Their symptoms and signs were fever (93.7%), malaise (93.7%), nausea (92.1%), jaundice (87.3%), headache

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An outbreak of Hepatitis A in Jizan, 2002, cont....

(82.5%), skin itching (79.4%), diarrhea (73.1%), abdominal discomfort (65.1%), vomiting (63.5%), change in color of urine (44.4%) and anorexia (25.4%). All the cases were children below 12 years of age with a mean of 6.5 years (SD 7.28 years). 49.2% of cases were from Mehlia, 42.9% from Khradla and 7.9% were from Omeriah with attack rates of clinical hepatitis A of 13.4/1,000 population, 24.3/1,000 population and 2.5/1,000 population, respectively.

As shown in figure 1, the first reported case occurred on 12th December, 2001 in Mehlia. The outbreak extended to Khradla and then to Omeriah over the following 3 months, in a pattern conforming to person-to-person transmission. The cases disappeared rapidly after local health authorities held a mass campaign for passive immunization in children during the second week of March.

Out of 177 controls, 4 were positive for anti HAV IgM antibodies, reflecting recent infection, so 173 controls were compared against the 63 cases. Males constituted 41.3% of cases and 37% of controls, but the difference was not statistically significant (OR 1.2, 95% CI 0.66 - 2.16). Saudi nationals composed 96.8% of cases, compared to 100% of controls. 58.7% of the cases were students, compared to 81.5% of controls, indicating that attending school was significantly associated with a lower risk of disease (OR 0.32, 95% CI 0.16 - 0.64). Among the 146 study subjects who could recall exposure to a known case of jaundice, 43.8% of cases and 6.15% of controls reported exposure and the difference was statistically significant (OR= 11.86, 95% CI 3.0 - 48.0).

There was no significant difference between cases and controls regarding eating food outside the home in the previous 45 days. Eating potatoes from street vendors was associated with a higher risk of disease but was not statistically significant.

The main source of drinking water was the water tankers for 92.1% of cases and 95.4% of controls, and was associated with a lower risk of disease when compared to drinking bottled water (OR 0.56, 95% CI 0.16-2.07). As for non-drinking purposes, the tankers were the main source of water for 92.1% of cases and 89.0% of controls, and were associated with a non-significant increased risk of disease as compared to using water from wells in the houses (OR 1.43, 95% CI 0.47-4.61). A small number of households used non-drinking water for drinking purposes (4.8% of cases and 1.7% of controls), and 25.4% of cases and 19.1% of controls reported using the non-drinking water for routine kitchen work (OR 1.44, 95% CI 0.69-3.01).

Washing hands with soap after using the lavatory and before eating meals had an inverse relationship with disease.

— Reported by: Dr. Ahmed Nasser Kholedi, Dr. Abdul Jamil Choudhry, Dr. Adel Muhammad Turkistani (Field Epidemiology Training Program).

Editorial note: Hepatitis A is endemic in many parts of the world, including Saudi Arabia.[1,2] The epidemic curve shows that the outbreak started in Mehlia village then gradually extended to the physically contiguous villages in a pattern of person-to-person transmission. In the presence of an unidentified number of subclinical cases this curve does not represent the magnitude of the total infected persons but gives a reasonable indication of the disease progression pattern in the area.

The exact pattern of prevalence of Hepatitis A depends mainly on environmental sanitation conditions.[3] In countries with poor environmental sanitation, disease is mainly transmitted among children but is more visible in adults due to a higher proportion of subclinical cases. In this study, however, all reported cases had occurred in children below 12 years of age, which may be explained by the fact that most of the adults had already developed antibodies against HAV as a result of clinical or subclinical infection, leaving only children as the available pool of susceptible hosts.

In spite of all efforts, no source of infection that could explain a common source model was identified, whether in household or school environments. Although a person-to-person transmission pattern could not be established due to a high proportion of subclinical cases, the absence of facilities for HAV isolation with subtyping, and sudden disruption of outbreak by passive immunization of most of the population by immunoglobulins, the cumulative evidence in support of person-to-person transmission is large. First, the epidemic curve exhibits multiple peaks and sequential transmission from one area to other is quite supportive to the person-to-person transmission model. Second, the children who had expo-

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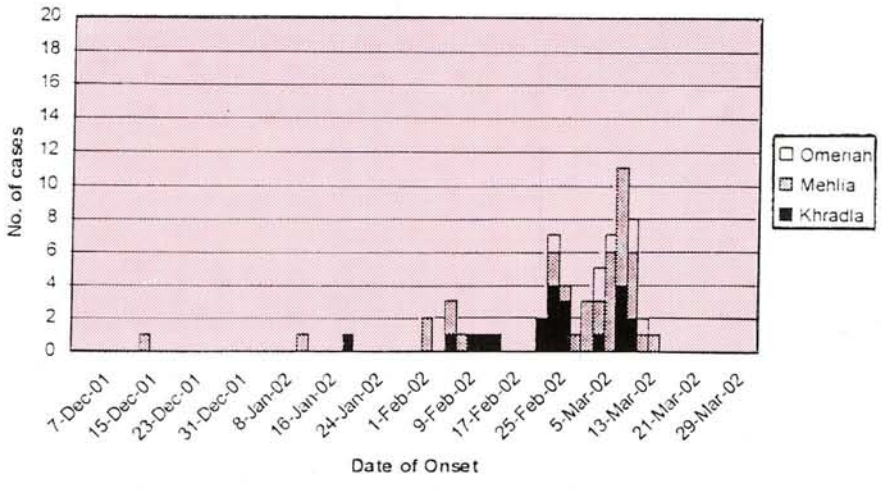
Figure 1: Epidemic Curve of Hepatitis A Outbreak in Jizan



Carriage rate of Meningococcal Meningitis among Riyadh Population, 2002

Meningococcal carriers are the primary source of transmission of infection under both epidemic and endemic conditions, where the risk of epidemic increases with the percentage of carriers in the population. This study aims to determine the carriage rate of meningococci among the population of Riyadh, Saudi Arabia.

The study was conducted using a cross-sectional approach. A total sample size of 700 was determined. Seven Primary Health Care Centers (PHCC) were selected randomly using a list of all PHCC in Riyadh city provided by the Riyadh Regional Health Affairs. For each PHCC selected, an equal number of male and female patients were taken, regardless of the type of complaint. All ages over 5 years were considered eligible. Systemic random sampling was done, where every fifth patient coming to the PHCC was selected. All were interviewed and an oro-pharyngeal swab was taken. A pre-designed questionnaire was created inquiring on demographic information, possible factors that influence carriage of meningococci (e.g. vaccination status, type of vaccination, antibiotic uses during the past four weeks, contact with meningococcal meningitis case) and indicators of living to calculate the index for crowdness. All swabs collected were sent to the microbiology laboratory at Al-Sulaimaniah Children Hospital in Riyadh.

During the period from 3-9 February 2002 (21-27/11/1422 H), we were able to interview 700 persons who had visited one of the seven selected PHCC's in Riyadh. The mean age was 27.4±14.3. Males accounted to 52% and females 48%. There was no significant difference between the ages of males and females. The majority of the sample selected were Saudis (73%) followed by Egyptians, Sudanese, Yemenis, Pakistanis, and Bangladeshis.

Regarding vaccination status, 51.1% were vaccinated, the majority of them had taken the bivalent vaccine (47.4%) and an almost equal number don't know which type of vaccine they had received (48.6%). Four persons (1.1%) reported receiving the single vaccine "A". Those who took the single vaccine were vaccinated more than 3 years previously, and were therefore not protected. Among others who reported their being vaccinated, only 187 (52.2%) were vaccinated within the last three years.

Among the 700 Oro-Pharyngeal Swabs, 44 (6.3%) were culture positive for *Moraxella Catarrhalis*, and 38 (5.4%) for other types of *Neisseria* rather than *meningitidis*. Among other *Neisseria* types, there were 2 (0.3%) *Neisseria Cinerea*, 29 (4.1%) *Neisseria Elongata*, 6 (0.9%) *Neisseria Gonorrhoae*, and 1 (0.1%) *Neisseria Subflava*. Non of the cultures were positive for *Neisseria Meningitidis*.

— *Reported by: Dr. Bager Abdulah Ashoor, Dr. Adel M. Turkistani (Field Epidemiology Training Program).*

Editorial notes: Meningococcal meningitis is an inflammation of the lining of the brain and spinal cord that can lead to sudden death or permanent brain damage, especially among young children. Five to ten percent of those suffering from the disease die as a result.[1] Its infectious agent is Neisseria meningitidis, which is a gram-negative bacterium that occurs in pairs (diplococcus). The serogroup of meningococcus is determined by its polysaccharide capsular antigen, and the serogroup of culture can be recognized by slide agglutination.[2] Meningococcal meningitis is also common in regions with high temperature and is widespread in the so-called "meningitis belt" of sub-Saharan Africa, from Ethiopia in the east to Senegal in the west. In this particular area, epidemic waves are seen every 8-14 years.[1] The incidence of meningococcal meningitis is 1-3 per 100.000 population in Europe, and America and 10-25 per 100.000 populations in developing countries. Incidence rate of up to 200-800 cases per 100.000 populations have been reported during epidemics.[3]

Transient nasopharyngeal carriage rather than disease is the normal status of meningococcal colonization. The natural habitat of the meningococci is the human nasopharynx. Among healthy children 5-15% are carriers of Neisseria Meningitidis, compared to 1% of the adult population. In countries with endemic disease, up to 5-10% of the population may be asymptomatic carriers.[2,4] Meningococcal carriers are the primary source of transmission of infection under both epidemic and endemic conditions where the risk of epidemic increases with the percentage of carriers in the population.[4] While vaccination is 90 to 95% effective in prevention of disease it does not protect against nasopharyngeal carriage of the bacteria.[5]

This study revealed that the carriage rate for *Neisseria meningitidis* among Riyadh population is 0%. Published studies have shown that the carriage rate of Neisseria meningitidis among adults is 1%.[4] This study was conducted in a population more than 5 years of age, and most of them were adults.

A study with a larger sample size is recommended to provide additional evidence for the very low carriage rate in the Riyadh population. Meningococcal meningitis vaccination program should be strengthened in Riyadh city, a population with low carriage rate and in turn at high epidemic risk.

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Assessment of health Impact among residents living near to a landfill Site in Sultanate of Oman

Improperly designed and maintained waste sites can produce irritant compounds and are implicated in contaminating the surrounding environment. Exposure to elevated levels of air pollutants is associated with both acute and chronic health effects.[1]

Sonob landfill, located close to a village called Sonob in Boushar wilayt, Muscat Governorate of Oman, and covering an area of around four sq. km., was operationalized 15 years ago within less than a kilometer of Sonob village. License issued by the concerned authorities allowed the disposal of household, commercial and industrial waste. Since the early 90's, residents living near to this landfill site voiced increasing concern that odors and smokes emitted from the site were causing illness. Symptoms and diseases reported included, in addition to bad odor and stress, eye infections or irritation, headache, cough, stuffy nose, dry throat, nausea, asthma and spontaneous abortions. Under the circumstances, it seemed imperative to study the effect of the landfill on the health of the residents quantitatively, mainly focusing on allergic disorders.

A cross-sectional study was conducted in five selected villages, Sonob, Falg sham, Hamam, Aqbia and Gala. All the people residing in the sampled cluster/village were included in the study. The objectives were to estimate the prevalence of allergic disorders in the area near the landfill as compared to the other selected villages, to quantify the ambient landfill associated air pollutants in the selected villages, and to study the effect of the landfill on allergic disorders and air pollutants.

Three data collection instruments were designed to collect the information for each village, household and individual, in a hierarchical pattern. The information collected included basic socio-demographic information; household environment; duration of living in the region; smoking; suspected landfill associated illnesses including respiratory diseases, stillbirths/abortions, congenital anomalies, conjunctivitis, dermatitis and cancer. The ambient air concentration for different toxic gases was measured at the landfill and the five study villages by using an apparatus called MIRAN 103. The concentration of 15 toxic gases on the landfill site and study areas were measured. A total of 1213 individuals were interviewed. There was no significant differences in household characteristics or socio-economic status between the five villages.

Diseases which predominantly had an allergic or irritative cause, including difficulty in breathing, bronchial asthma, dry cough, bronchitis, rhinitis, dermatitis and conjunctivitis; were grouped together and labeled as Allergic Disorders. Sonob had the highest prevalence of allergic disorders (Table 1). In general, the prevalence of allergic disorders increased the closer people lived to the landfill. The association between prevalence of allergic disorders and distance from the landfill showed an odds ratio of 0.77 (95% CI 0.73-0.81).

When the association was examined after controlling for each of the socio-demographic, household and environmental factors using multiple logistic regression (Table 2), there was practically no difference between the crude and the adjusted odds ratios, indicating that none of these variables were confounders. Even controlling for all the three groups together did not produce a significant change in the OR. These results show that the association between distance from landfill and the prevalence of allergic disorders was independent of all the potential confounding factors studied.

The concentration of all the 15 gases measured showed a statistically significant inverse association with increasing distance from the landfill, and 10 were found to be above the normal permissible limits.

Data was also analyzed using the ecological technique to study the relationship between distance from landfill, concentration of ambient gases in different villages and the prevalence of allergic disorders. The grouped prevalence of allergic disorders had a good correlation with the distance from landfill (r = -0.734) but was not statistically significant. When the effect of distance from the landfill was controlled for, although the correlation coefficient remain reasonably large, the relationship became statistically not significant. This change suggests the presence of some alternate mechanism to describe the relationship between allergic disorders and landfills, which is only partially explained by the emittent gases studied.

— *Reported by: Dr. Hassan Al-Tuhami, Dr. Abdul Jamil Choudhry, Dr. Nasser Al-Hamdan, Dr. Adel Turkistani (Field Epidemiology Training Program, Ministry of Health).*

Editorial notes: Human exposure to air pollution may result in a variety of health effects depending on the type of pollutants and the magnitude of exposure. The WHO has been concerned with air pollution and its impact on human health for over 40 years. However, the first edition of

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Table 1: Prevalence of allergic disorders in study villages, Oman 2002.

Village	population	Allergy		Sonob vs other villages	
		No.	%	OR	95% CI
Sonob	318	231	72.6%	Reference	
F.sham	264	147	55.7%	2.11	1.49 - 2.98
Hamam	254	73	28.7%	6.58	4.56 - 9.50
Aqbia	101	11	10.9%	21.72	11.08 - 42.57
Gala	276	106	38.4%	4.25	3.01 - 6.01
Total	1213	568	46.8%		

Assessment of health Impact among residents living near to a landfill Site in Sultanate of Oman, cont ....

the WHO air quality guidelines was published in 1987.[1,2] The investment in investigating, monitoring, assessing and controlling pollution helps to avoid adverse outcomes to heath and ecosystems, which are usually more costly then preventive actions.

Most modern landfills are carefully designed structures built into or on top of the ground, in which trash is physically isolated from the surrounding environment. This is accomplished with a bottom liner, either a synthetic plastic liner or a clay liner, to isolate the trash from the environment, and a daily covering of soil.[3]

A number of landfill gases are generated during the natural process of bacterial decomposition of municipal solid waste. A number of factors influence the quantity of landfill gases generated and their composition. These factors include but are not limited to the type of waste in the landfill, its moisture content, acidity and temperature.[3] The generated landfill gas consists of a mixture of gases; 50% methane, 45% carbon dioxide, small amounts of hydrogen sulfide, oxygen, nitrogen oxides, and trace amounts of non-methane organic compounds.[1,4] It has been estimated that each ton of waste has the potential to generate approximately 400 cubic meters of bio-gas over a period of 10-15 years. Most modern landfill sites are tightly sealed units, which generally slow the degradation process and, as a result, a landfill can continue to produce gases even after a period of 50 to 100 years.[5]

Epidemiological literature on health effects related to residence near landfill sites have showed an increased risk of adverse health effects. Low birth weight, birth defects, certain types of cancers, respiratory diseases and psychological disturbances.

In 1998 a study explored the health of residents living near 23 landfill sites across Europe which showed that living near a landfill site was associated with a 33% increased risk of non-chromosomal anomalies, such as neural tube defects, cleft palate, and certain cardiovascular and gastrointestinal disorders.[6] Another study conducted around Montreal landfill reported modest excess risks for stomach cancer (RR 1.14, 95% CI 1.01-1.45) and cancer of the cervix (RR 1.23, 95% CI 1.04-1.45) among women, and fewer than expected breast cancers. Among men, a modest excess risk was found for stomach cancer (RR 1.24, 95% CI 1.06-1.44) and for cancer of the liver and intrahepatic ducts (RR 1.79, 95% CI 1.21-2.64). Modestly elevated RRs were also seen for lung cancer.[7]

Regarding landfill odors, which represent more of a public nuisance than a health hazard, for some people, simply smelling an unpleasant odor can be sufficient to create an adverse physiological response like headache, nausea, appetite loss, irritability and fatigue. Effects on well-being may certainly affect immunity and susceptibility to disease.[8]

It was recommended that the landfill site be closed or moved from the residential area if possible. Air pollutant gases should be regularly monitored at the landfill and area around it. Landfill gas should be treated either by burning in a flare or by use of absorbent material within the landfill. All landfill sites should be constructed at least 20-30 km away from residential areas, keeping in mind the direction of construction and building expansion. Further studies should be conducted, and investigating other sources of environmental pollution, such as water and soil.

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Table 2: Association between Allergic Disorders and Distance from the landfill site

Confounding Factors	OR	95% C.I
Crude value	0.77	0.73-0.81
Controlling for demographic factors (Age, Sex, Marital status)	0.76	0.72-0.80
Home environmental factors (Court yard, Carpet, Vacuum Cleaner, AC)	0.75	0.71-0.79
Socioeconomic factors (Monthly expenses, Occupation, Education, Accommodation)	0.80	0.75-0.85
All variables	0.74	0.70 - 0.79

ملخص باللغة العربية

تقرير عن فاشية الألتهاب الكبدي "أ" المكتشفة بمنطقة جازان

توجه فريق من برنامج الوبائيات الحقلي إلى منطقة جازان يوم الاثنين الموافق ١٤٢٣/١/٤هـ لإجراء الاستقصاء الوبائي لحالات الالتهاب الكبدي "أ" التي ظهرت بالمنطقة.

وقد قام الفريق بعقد اجتماع مع العاملين بقسم الطب الوقائي بمنطقة جازان لمناقشة الوضع الوبائي لحالات الالتهاب الكبدي "أ" المكتشفة بالمنطقة وتمت مراجعة الإجراءات التي قاموا بها لاكتشاف مصدر العدوى والحد من انتشار المرض. ثم تمت زيارة مستشفى جيزان العام، وتم الإطلاع ومراجعة الملفات الطبية للحالات المكتشفة. كما قام الفريق أيضا بزيارة للمركز الصحي الذي يخدم القرى التي ظهرت بها الحالات، كما قام بمقابلة خمس حالات من ثلاث قرى لتكوين فكرة عامة عن المصادر المحتملة للعدوى.

معظم الحالات المكتشفة تم الكشف عليها إما بقسم الطوارئ أو بالعيادات الخارجية ولم يتم تنويم سوى ١٥ حالة [١٣ حالة (٨٧%) منهم إيجابية للالتهاب الكبدي "أ"] وذلك لسحب عينة دم منهم لعمل الفحص المخبري للتأكد من التشخيص أو لوجود أمراض أخرى مصاحبة للالتهاب الكبدي "أ".

وقد بلغ إجمالي الحالات المكتشفة ٧٣ حالة جميعهم أطفال تتراوح أعمارهم من ٢-١٢ سنه (المتوسط العمري ٥ سنوات) ونسبة الذكور للإناث ١:٢. والحالات موزعة في ثلاث قرى وهي محلية و الخرادلة و العميرية. وهذه القرى تبعد حوالي ١٥ كم من مدينة جيزان وتخدم من مركز صحي واحد (مركز صحي محلية).

بدأت الحالات بالظهور في أواخر شهر رمضان (١٤٢٢/٩/٢٧هـ) وذلك بقرية الخرادلة. وكانت لطفل سعودي يبلغ من العمر ٩ سنوات تلتها حالة أخرى لطفلة سعودية تبلغ من العمر ٥ سنوات تسكن بنفس القرية بعد حوالي شهر (١٤٢٢/١٠/٢٨هـ) من ظهور الحالة الأولى. وفي نفس الوقت تقريبا (١٤٢٢/١٠/٢٩هـ) ظهرت أول حالة في قرية محلية لطفلة سعودية تبلغ من العمر ٥ سنوات. وهاتان القريتان متجاورتان لا يفصل بينهم سوى الطريق الموصل إلى مدينة جيزان. وقد سجلت معظم الحالات (٩٣%) في هاتين القريتين [قرية الخرادلة ٣١ (٤٢%) حالة و قرية محلية ٣٧ (٥١%) حالة] بينما لم تسجل سوى خمسة حالات من قرية العميرة التي ظهرت بها أول حالة في ١٤٢٢/١١/٢٦هـ وهي مجاورة لقرية الخرادلة.

من خلال زيارتنا للحالات في منازلها، وجد أن جميع الحالات تماثلت للشفاء. وبالسؤال عن مصادر المياه، تبين عدم وجود شبكة مياه تحلية في المنازل ويقومون بشراء الماء من الوايتات. وقد كانت الإجابات متماثلة فيما يخص استخدام المياه الذي يتم شراؤه، فهناك وايتات خاصة تقوم ببيع المياه الخاصة بالشرب ويتم تعبئتها بجوالين، ووايتات أخرى تبيع المياه الخاصة بالغسيل ويتم وضعها بخزانات من الزنك أمام المنزل ويتم رفعها للخزانات العلوية بواسطة المواطير وهذه المياه تستخدم أيضا للطبخ.

ولا يوجد هناك شبكة مجاري، ويعتمد أصحاب المنازل على حفر خزان للمجاري تحت الأرض. وبمعاينة الوايتات التي تبيع المياه، وجد أنه لا يوجد علامات واضحة ومميزة بين الوايتات التي تبيع مياه الشرب أو تلك التي تبيع مياه الغسيل. وبالسؤال عن كيفية التفريق بينهما وجد أنهم يعتمدون على ما يقوله سائقي الوايتات بالإضافة إلى الفرق في الطعم.

من خلال مراجعتنا لتوزيع الحالات حسب تاريخ اكتشافها وعمل الرسم البياني لها وجد أنها تعطي انطباع أولي بإمكانية انتقال المرض من شخص إلى آخر. ولكن بانتشار الحالات في أكثر من قرية فإمكانية وجود مصدر عام للإصابة بالمرض لا يمكن استبعاده. وبغياب الرقابة على الوايتات التي تبيع المياه وعدم كلورتها قبل الاستخدام وبوجود الباعة المتجولين الغير مرخصين مع غياب الرقابة عليهم يصبح الاحتمال قائم بأن يكون إحدهما مصدر للعدوى.

إعداد: د. أحمد ناصر خليدي، د. عادل محمد تركستاني (برنامج الوبائيات الحقلي).

معدل حمل ميكروب الحمى المخية الشوكية بين سكان مدينة الرياض، ٢٠٠٢ م

حيث أن حاملي ميكروب الحمى المخية الشوكية هم أهم مصدر لهذا المرض و تفشيه الوبائي فقد قمنا بإجراء دراسة مقطعية تهدف إلى التعرف على معدل حمل ميكروب الحمى المخية الشوكية بين سكان مدينة الرياض.

تم اختيار ٧ مراكز رعاية صحية أولية عشوائياً من بين مراكز مدينة الرياض، و من ثم تمت مقابلة ٧٠٠ شخص اختيروا عشوائياً من السبع مراكز الصحية، على أن تكون أعمارهم أكبر من خمس سنوات. تم سؤال الأشخاص المشاركين بالبحث عما إذا كانوا قد خالطوا مرضى بالحمى المخية الشوكية و إذا كانوا قد طعموا بلقاح الحمى المخية الشوكية من قبل، و عن نوعية اللقاح. كما تم أحد مسحة حلقية من كل منهم.

كان المعدل العمري للعينة ٢٧،٤ ± ١٤،٣ عاماً، منهم ٥٢% من الذكور و ٤٨% من الإناث. و قد كان أغلبية المشاركين في البحث من السعوديين (٧٣%)، و الباقي من الجنسيات الآخرى. ٣٨٥ شخص من العينة (٥١،١%) كانوا قد سبق لهم التطعيم ضد الحمى المخية الشوكية وأغلبيتهم كانوا قد أخذوا اللقاح الثنائي (٤٧،٤%)، و النصف الآخر لم يعرفوا أي نوع من التطعيمات قد أخذوها.

بالنسبة إلى مزرعة المسحات الحلقية لم يتم عزل ميكروب الحمى المخية الشوكية من أي منها.

تم التوصية بإجراء بحث على عينة أكبر للتأكد من المعدل المنخفض جدا لحاملي ميكروب الحمى المخية الشوكية بين سكان مدينة الرياض. كما يجب العمل على تقوية برنامج التحصين ضد الحمى المخية الشوكية بين سكان مدينة الرياض، لأنهم بالتالي عرضة أكبر للإصابة بالمرض و انتشاره السريع بينهم.

إعداد: د. باقر عاشور، د. عادل تركستاني (برنامج الوبائيات الحقلي).

Outbreak of Hepatitis A in Jizan, cont ...

(Continued from page 10)

sure to a known case of jaundice had a higher risk. Third, the children who had better personal hygiene practice, were at lower risk. Fourth, families which used non-drinking water were at higher risk. Although many of the associations observed were statistically not-significant but they conform with general pattern described. This outbreak can be treated as an exacerbation of the endemic person to person faeco-oral transmission of disease which is prevalent in such areas with poor water supply and low socioeconomic status. [1,4,5]

To prevent recurrence of such outbreaks and control of endemic transmission of disease, piped water supply should be provided to the community, preferably accompanied by establishment of proper sewage disposal system. In the meantime, the local municipality should do periodic monitoring of the quality of water provided by tankers. A health education campaign should be initiated to improve personal hygienic practices mainly targeting children.

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1. World Health Organization. Public health control hepatitis A: memorandums from a WHO meeting. Bull Wrld Hlth Org 1995; 73(1): 15-60.
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5. Strickland GT. Hepatitis A. Hunter's tropical medicine (7th ed.) Philadelphia: WB Saunders Co. 1991; 188-90.

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Inside the Kingdom

October 14-16, 2002: Cancer.
Host organisation and Location: King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia. Contact: Academic Affairs & Postgraduate Education, King Faisal Specialist Hospital & Research Centre, P.O.Box 3354, MBC 36, Riyadh 11211, KSA. Tel: 966 1 4427238. Fax: 966 1 4427237. Website http://www.kfshrc.edu.sa/symposia, E-mail: web_symposia@kfshrc.edu.sa

October 29-30, 2002: Pre-term Delivery: Causes, Identification and Management.
Host organisation and Location: King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia. Contact: Academic Affairs & Postgraduate Education, King Faisal Specialist Hospital & Research Centre, P.O.Box 3354, MBC 36, Riyadh 11211, KSA. Tel: 966 1 4427238. Fax: 966 1 4427237. Website http://www.kfshrc.edu.sa/symposia, E-mail: web_symposia@kfshrc.edu.sa

November 2-4, 2002: Genetics in Health and Disease - Status, Implicit and Implications for Individuals and Community & the Third MEGA Meeting
Host Organisation: Department of Medical Biochemistry & WHO Collaborating Center/Postgraduate Center, College of Medicine, King Saud University.
Location: Cultural Palace, Diplomatic Quarter, Riyadh.
Contact: The Department of Medical Biochemistry & WHO Collaborating Center/Postgraduate Center, College of Medicine, King Saud University, P.O. Box 2925, Riyadh 11461, Saudi Arabia. Tel: (966) 1-467-0831/467-1551; fax: (966) 1-467-2575/481-1853; e-mail: mohsen@ksu.edu.sa.

Outside the Kingdom

October 26-29, 2002: Eighth Pan Arab Congress of Dermatoses: Arab Dermatology in the new millennium
Contact: Dr. Khalil Al-Arayed, PO Box 12, Manama, Bahrain Tel. +973 272687 Fax. +973 273754 E-mail: arabderm@health.gov.bh

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Selected notifiable diseases by region, Apr – Jun 2002

	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Hasa	Hafr AlBatin	Asir	Bisha	Tabuk	Hail	Al Shamal	Jizan	Najran	Baha	Al Jouf	Goriat	Gonfuda	Total
Measles	9	80	23	0	7	0	0	1	0	0	0	1	14	0	0	0	2	0	0	0	137
Mumps	40	15	45	11	20	31	25	14	46	10	1	7	4	6	7	4	1	0	3	0	290
Rubella	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Varicella	3545	438	1919	398	507	2096	2442	1364	1400	1170	425	1260	254	309	137	219	95	92	87	80	18237
Brucellosis	135	11	8	62	25	293	68	10	68	320	75	8	215	31	26	52	16	26	1	12	1462
Meningitis mening.	2	2	3	0	3	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	14
Meningitis othr.	56	11	23	27	12	14	5	16	9	0	0	2	3	0	2	0	0	0	0	0	180
Diphtheria	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Hepatitis A	166	27	38	5	80	134	28	12	66	66	29	55	74	15	13	97	16	20	5	0	946
Hepatitis B	306	104	289	29	62	40	146	6	5	69	11	11	4	7	22	2	23	1	1	3	1141
Hepatitis C	166	111	257	23	48	20	101	10	3	3	14	12	5	3	3	6	10	0	0	0	795
Hepatitis, unspecified	79	13	17	0	1	0	0	7	0	67	0	29	8	0	198	1	0	0	0	0	420
Typhoid & paratyphoid	16	21	0	0	4	16	10	12	3	18	4	0	18	15	1	3	0	0	0	1	142
Amoebic dysentery	18	2	433	27	25	22	24	21	10	94	29	0	7	0	22	17	9	0	3	0	763
Shigellosis	34	0	4	0	5	4	17	5	2	0	2	7	0	3	1	32	0	0	0	0	116
Salmonellosis	212	3	42	12	16	7	257	20	14	6	21	42	0	0	1	14	2	0	0	0	669
Syphilis	2	0	14	0	0	0	3	10	0	1	3	0	1	1	0	0	4	0	0	0	39
VD, other	9	0	10	0	0	0	13	12	0	5	1	0	0	0	8	0	0	0	0	0	58

Comparisons of selected notifiable diseases, Apr–Jun 2001-2002

DISEASE	Apr-Jun 2002	Apr-Jun 2001	Change %	Jan-Jun 2002	Jan-Dec 2001	DISEASE	Apr-Jun 2002	Apr-Jun 2001	Change %	Jan-Jun 2002	Jan-Dec 2001
Diphtheria	3	0	8	6	0	Meningitis, other	180	137	31	356	604
Pertussis	13	15	-13	17	35	Hepatitis A	946	1044	-9	1748	3069
Tetanus, neonatal	5	4	25	12	27	Hepatitis B	1141	1055	8	2231	3864
Tetanus, other	4	1	300	7	8	Hepatitis C	795	643	24	1552	2608
Poliomyelitis	0	0	0	0	0	Hepatitis, Unspec.	420	435	-3	665	1414
Measles	137	67	211	237	155	Typhoid/paratyph	142	87	63	219	367
Mumps	290	216	34	454	941	Amebic dysentery	763	716	7	1382	2772
Rubella	4	11	-64	5	16	Shigellosis	116	164	-29	222	589
Varicella	18237	11283	62	29155	32642	Salmonellosis	669	512	31	1046	1927
Brucellosis	1462	1706	-14	2442	4865	Syphilis	39	43	-9	67	136
Meningitis, Men.	14	78	-82	47	316	VD, other	58	120	-52	148	395

Diseases of low frequency, Apr – Jun 2002

Yellow fever, Plague, Poliomyelitis, Rabies, Hemolytic Uremic Syndrome: No cases
Puerperal sepsis: One case (Riyadh)
Pertussis: 13 (Riyadh 8, Hail 3, Makkah 1, Eastern 1)
Neonatal Tetanus: 5 (Jeddah 3, Makkah 1, Riyadh 1)
Echinococcosis: 2 cases (Riyadh)
Guillain-Barre syndrome: 21 (Riyadh 8, Assir 3, Eastern 2, Qassim 1, Jeddah 1, Taif 1, Tabuk 1, Najran 1, Bisha 1, Makkah 1, Jouf 1).