

النشرة الوبائية السعودية تصدرها وزارة الصحة

الوكالة المساعدة للطب الوقائي وبرنامج الوبائيات الحقلية

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Neisseria Meningitidis Colonization among residents of Makkah and Madinah before Hajj season, 1422 H (2002).

Saudi Arabia has experienced recurrent occurrence of meningococcal meningitis (MCM) cases related to hajj, this was mainly in the two Holy cities (Makkah & Madinah), but occasionally extended to other cities within Saudi Arabia and abroad. This study aimed to determine the carriage rate of meningococci among the two Holy cities' residents before Hajj and identify their serotypes so as to establish the role of the local population in disease transmission. Further, it was meant to evaluate the effectiveness of Ciprofloxacin in eradicating colonization of meningococci.

An observational study was conducted using a cross sectional approach to identify carriers. The populations of the two Holy Cities were divided into two main categories: a high risk population comprised of those who come in direct and close contact with the pilgrims and share the experience of a crowded work space, this included workers at the Holy Mosques (Haram) and adjacent commercial area. The low risk population was comprised of ordinary citizens living in the two Holy Cities (Makkah and Madinah). The total estimated sample size of 1400 persons from each city was equally divided between the high risk and low risk populations. The number for the high risk population was further subdivided equally between those working inside the Holy Mosque and those working in commercial sites adjacent to the mosque.

The low risk populations were selected randomly from individuals registered at Primary Health Care Centers (PHCC). Fifty individuals from both the male and female sections of the PHCCs were selected using a systematic random sampling method. These individuals were then referred to the assigned clinic for interview and obtaining the nasopharyngeal swab. With regards to the high risk population, lists of those working in Haram were provided by the Department of Holy Mosque Affairs, and 350 names were selected using a systematic random selection method; another 350 individuals were selected from workers at commercial sites adjacent to each Mosque. After training the participating nurses and health care workers, data was collected using a standardized questionnaire, ensuring appropriate collection and

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Neisseria Meningitidis Colonization among residents of Makkah and Madinah before Hajj season, 1422 H, cont

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transportation of swabs.

Participants who were found to be culture positive for *Neisseria meningitidis* in the naso-pharyngeal swab were given a single 500 mg oral dose of Ciprofloxacin in an attempt to eradicate colonization. After 48 hours of chemoprophylactic ingestion, another naso-pharyngeal swab was taken to evaluate its efficacy. Also, another naso-pharyngeal swab was taken from those who remained culture positive after 48 hours, 5 days from the time of Ciprofloxacin ingestion.

During the period Jan 17th to Feb 11th, 2002 (03 - 28/11/1422 H) 2797 individuals were included in the study, 49.9% from Makkah and 51.1% from Madinah. The mean age of participants from Makkah was 32.6 years (SD 13.1) and from Madinah 31.0 years (SD 12.9). Males represented the majority of participants both in Makkah and Madinah (71.8% and 73.8% respectively). Saudi nationals among the participants in Makkah were less than in Madinah (45.4% and 56.3% respectively). Participants belonged to 23 nationalities other than Saudis, the highest were Bangladeshis and Pakistanis, representing 11% and 10% respectively. 31.2% of Makkah and 32.5% of Madinah participants were only able to read and write.

Those working at commercial sites adjacent to Holy Mosque showed the highest frequency of having a valid vaccination (78.3% for Makkah and 72.4% for Madinah). Although participants from PHCCs in Makkah showed the lowest level of vaccination (65.8%) compared to other locations in Makkah, it was still higher than those in Madinah other than commercial site location. The majority of participants in Makkah and Madinah knew the type of vaccination received (54.6% and 71.7% respectively). The Bivalent vaccine was much higher in Makkah (34.6%) as compared to Madinah (17.3%). Those who mentioned receiving a Quadrivalent vaccine were slightly lower among participants in Makkah (10.8%) than Madinah (11.1%).

A few of the participants (13.2%) reported using antibiotics within the four weeks prior to the interview. The

majority (84.3%) reported that the antibiotic had been prescribed by physician. The reasons for taking the antibiotics varied, but the majority (58.1%) had received them as treatment of different upper respiratory complaints.

Among 2797 naso-pharyngeal swabs taken from Makkah and Madinah, 86 (3%) were culture positive for different types of Meningococci. Of these positive cultures, 49 were identified among Makkah participants and 37 among Madinah participants. Of the 49 culture positive samples of Makkah participants, only 16 (32%) demonstrated *N. meningitidis*; 9 were serotype W135, 3 serotype B, 3 other serotypes (Z, Y, D),

and 1 ungroupable. Of the 37 culture positive samples of Madinah participants, only 2 (5%) demonstrated *N. meningitidis* serotype W135.

Among 1395 participants from Makkah, 16 (1.1%) were identified positive for different *N. meningitidis* serotypes, compared to only 2 (0.1%) among 1402 participants from Madinah.

As given in table 1, although there is a statistically significantly higher number of *N. meningitidis* carriers in Makkah compared to Madinah, but there was no significant difference on the basis of site of recruitment of subjects; their age, gender, nationality, vaccina-

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Table 1: Carriage Rate of *Neisseria meningitidis* among the 2797 participants in Makkah and Madinah, 2002.

	Culture			P value
	Positive n=18	Negative n=2779	Carriage Rate	
City				
Makkah	16	1379	1.1%	0.0004
Madinah	2	1400	0.1%	
Site				
Holy Mosques	5	693	0.7%	0.89
Commercial Site	5	694	0.7%	
PHCC	8	1392	0.6%	
Age Group				
< 5 Years	1	11	8.3%	0.89
5 - 14 Years	1	213	0.5%	
15 - 44 Years	12	2115	0.6%	
>45 Years	4	440	0.9%	
Gender				
Male	15	2021	0.7%	0.54
Female	3	758	0.4%	
Nationality				
Saudi	7	1415	0.5%	0.31
Non-Saudi	11	1363	0.8%	
Vaccination status				
Vaccinated	14	2104	0.7%	0.95
Not Vaccinated	4	675	0.6%	
Antibiotics Use				
Taken	1	367	0.3%	0.54
Not taken	17	2412	0.7%	
Bedroom Area				
Area ≤ 4 m ²	10	1423	0.7%	0.91
Area > 4 m ²	8	1356	0.6%	

Behavioral Risk Factors for Diseases during Hajj 1422 H, (2002 G)

The pilgrimage to Makkah (Hajj) is an annual congregation of more than 2.3 million Muslim Pilgrims (hajjis) with different nationalities, languages, life styles, level of education, and health status. This study was conducted to estimate the disease related behavioral risk factors (BRF) among hajjis during Hajj 1422H (2002G) and to study the changes in BRF of hajjis observed in an earlier study conducted in 1418 H(1998 G) by the Field Epidemiology Training Program, Riyadh.¹

A cross-sectional survey was conducted among hajjis while staying in Mina using a self-administered questionnaire. Sampling was done by a three stage simple random cluster sampling technique based on geographical mapping, with 50 clusters of 30 hajjis each. The self-administered questionnaire used in 1418 H was revised in light of the experience of the previous studies and translated into 12 languages. A team of physicians and health inspectors collected the data in Mina on the 10th and 11th of Thul-Hijjah, in accordance with the laid down sampling plan.

A total of 1374 hajjis participated in the study, with a mean age of 43 years. Of the total, 86.4% were male and 13.6% were female. The participants belonged to 22 nationalities, which were categorized into eight regional groups for presentation of data. Only 18.8% were domestic hajjis, among them 66.7% were Saudis.

Out of the total hajjis, 68.6% were performing Hajj for the first time. The majority (76.1%) of hajjis in the study had arrived in Makkah by air, while 22% arrived by land and the rest by sea. Out of the total hajjis, 94.4% performed Hajj with Hamla (organized group).

Of all the hajjis, 89.8% were vaccinated against meningococcal meningitis. The coverage of meningitis vaccine among international hajjis and domestic hajjis was 90.4% and 87% respectively. The lowest coverage of meningococcal vaccine was observed among hajjis from Malaysia (45.6%) and Iraq (58.3%). Out of the hajjis vaccinated against meningitis 2.1% had received meningitis vaccine in the

Saudi ports. Only 66% of all vaccinated hajjis were vaccinated at least 10 days before arrival to Makkah. Some of the hajjis were vaccinated against other diseases including cholera (11.1%), typhoid (9%), and influenza (10.2%).

Out of the total hajjis 16.9% kept leftover food stored for more than two hours, 49.3% of hajjis from Turkey, 36.5% of Algerians, 32.7% of Egyptians and 29.2% of Australians, compared to only 7.6% of hajjis from Saudi Arabia.

Out of the total hajjis surveyed 71% had drank less than 2 liters of fluid in the 24 hours prior to the survey. Regarding the sources of the drinking water, 49.1% reported drinking water from water coolers available in the camps, 54.4% from bottled water, 4.8% from the plastic bags, 7% from the water tanker, 3.4% from the toilets or wadu taps, and 2.2% from other sources like Zamzam water.

Out of all hajjis 13.6% lost their way in Mina and 6.6% lost their way in Arafat. Among the hajjis who had lost their way, 69.5% reported losing their way for 1-4 hours and 19.5% for over 5 hours.

Most of the hajjis moved between the holy places by cars or buses. About 15% walked between the holy places, mostly those from Indian Subcontinent (ISC), SubSaharan Africa (SSA), and Arabs other than those from Gulf Cooperation Council (GCC). Among hajjis who walked between the holy places, 10.1% reported carrying heavy loads during the journey. While moving between the holy places, 10.8% of all hajjis (especially those from Arab countries other than GCC, ISC, Turkey) traveled on the roof of the vehicles, and about 1.3% of all hajjis hanged on the side of the vehicles.

Out of total male Hajjis 50.7% used razor blades to shave their head, 30.9% used scissors, 14.9% used hair trimmers and 3.5% had not cut or shaved their hair by the time of survey. The SEA hajjis (15.4%) used razor blades least, while the ISC hajjis (78.7%), Iranian hajjis (73.2%), SSA hajjis (68.5%) and Saudi hajjis (61.8%) used them more frequently. Out of total hajjis who used the razor

blade for shaving only 1.9% of them shaved their head with used razor blades. Around one third of the hajjis (30.2%) had their head hit by pebbles thrown at Al-Jamarat sites; 26.2% had light hits while 4% had severe hits.

Out of the total hajjis who came with organized groups (Hamla) 64.5% had at least one accompanying doctor in the group. Of all hajjis 29.5% had visited one of the health facilities in the holy places at least once during the Hajj period. The main complaints for which health care was sought included cough and throat pain 67.3%, fever 22.9% and weakness 7.8%.

Of all hajjis, 13.2% were suffering from one or more of the chronic diseases. Out of the total hajjis, 6.8% were suffering from diabetes mellitus, 1.1% from bronchial asthma, 5.3% from hypertension and 2.8% from cardiovascular diseases. Diabetes mellitus and hypertension were more common among hajjis from Europe and Australia. 96.7% of the hajjis with chronic diseases brought their medication with them from their home countries.

Regarding health education, 34.4% had received health messages about not storing food for long periods, 41.3% about not to get their heads shaved by a used blade, 27.5% about using toilets for urination, and 39.9% about the importance of wearing the wrist band during hajj time. The most common place where hajjis received the health messages was Makkah followed by Mina, Airport, and Arafat.

Out of all hajjis 67.5% used the identification/health bands, while only 4.7% of Saudi Hajjis and 35.6% of GCC Hajjis wore such bands. Among those who didn't use the wrist band 7.4% reported not using it because of religious reasons, 26.4% thought that it is not important to use, 7.1% had lost it, while 22.1% had no particular reasons, and 36.9% had never been provided with wrist bands.

In comparison to 1418 H study, this study has shown that there is a statistically significant increase in coming to Makkah by land and with organized groups, getting the food from organized groups in Mina and Arafat, wear-

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Behavioral Risk Factors for Diseases during Hajj, 1422 H

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ing the identification wristband, using facemasks and bringing the medications with them. There is a statistically significantly less hajjis losing their way in Mina, and using a used razor blade for head shaving or using a health facility. Other factors remained practically unchanged.

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Editorial note: Hajjis vary in age, nutritional and educational status, underlying chronic diseases, beliefs and lifestyles while being exposed to strenuous physical efforts, irregular diet and unfamiliar landscape, which may lead to increased risk of illnesses. Data on behavioral risk factors of Hajjis are necessary to formulate intervention strategies, justifying resources to support these strategies and proposing new policies or regulations.² A number of studies on this aspect have been conducted by the FETP and the last one was in 1998.^{1,3}

The results of this study showed considerable improvement in certain health behaviors, while others are relatively unchanged. Meningococcal disease (MCD) is a serious disease, with high epidemic potential and case fatality rate.⁴ In the very dynamic population of Makkah, with massive crowding, and a large number of the hajjis coming from endemic areas, result in high chance of outbreaks. Vaccination coverage rate was fairly high this year but the situation of Malaysia and Iraq need special attention. For vaccination to be effective, Hajjis should be vaccinated at least 10 days before arrival to Makkah to perform hajj.⁵ In this aspect, the vaccination coverage is low, especially for local and domestic hajjis and hajjis from GCC and other Arab countries. This indicates that a large number of hajjis were not aware about the proper timing for meningitis vaccination before hajj, and the respective health or Hajj departments in their countries had not taken care of this issue properly.

More than half the hajjis had used razor blades to shave their heads during hajj. Head shaving in such circumstances may result in scalp wounds, especially in case of unexperienced barbers or hajjis shaving each other, creating an ideal environment for transmission of blood-borne diseases (e.g. HIV, Hepatitis B&C). The impressive thing is that the proportion of hajjis who got their head shaved with used razor blades had decreased tremendously in comparison with the results of the previous study. This reflects the increased awareness of the people about the danger of using used blades for head shaving.

It is recommended that the Saudi Ministry of Health coordinate with other hajj missions to ensure the timely vaccination of all Hajjis against meningococcal meningitis. Health education should be continued and its scope broadened to cover the issues of adequate intake of water, avoidance of eating non-fresh food, use of face mask and avoiding travel

on the roofs of vehicles.

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Table 1: Comparison of observations between the BRF studies conducted in 1418 H and 1422 H

Variable	1418 (%)	1422 (%)	1418 - 1422	P-value
First time hajj	70.5	68.7	+1.8	0.281
Came by land	18.5	21.5	-3.0	0.043
Hajjis with organized group	84.4	94.4	-10.0	<0.001
Meningitis vaccine	88.3	89.8	-1.5	0.209
Food in Mina	54.2	60.7	-6.5	0.009
Food in Arafat	59.5	67.6	-8.1	<0.001
Lost way in Mina	19.1	13.6	+5.5	<0.001
Lost way in Arafat	6.1	6.6	-0.5	0.615
Traveled on car roof between holy place	10.5	10.8	-0.3	0.810
Hanging on the side of the vehicle	1.0	1.3	-0.3	0.550
Identification Wristband	61.3	67.5	-6.2	<0.001
Razor blade for head shaving	56.4	50.7	+5.7	0.004
Accompanying doctor	58.7	64.5	-5.8	0.003
Used health facilities	44.4	29.5	+14.9	<0.001
Using facemask during hajj	17.8	33.2	-15.4	<0.001
Feet wounds during hajj	20	17.8	+2.2	0.226
Left food > 2hours	17.9	16.9	+1.0	0.491
Brought medication with them	77.6	96.6	-19.0	<0.001

Pattern of injuries presenting at health facilities in Makkah and Mina during hajj 1422 H.

Annually, more than two million Muslims from over 159 countries perform hajj.¹ During Hajj, hajjees are exposed to the risk of injuries as a result of a complex interaction of overcrowding, unknown environment, ignorance and carelessness. Heat also plays a role in increasing the risk of injuries. The objectives of this study were to describe the pattern of injuries presenting at selected health facilities in Makkah and Mina during the hajj season of 1422 H.

A cross sectional study design was used to conduct this study. A questionnaire was designed to obtain information on age, sex, nationality, health facility, cause of injury, time and site of injury, treatment, date of admission, discharge and referral, if any. Data was collected by review of emergency room log-books of the selected medical facilities, in the period from 1 to 12-12-1422 H, in both Makkah and Mina. Five locations were selected: Al-Haram dispensaries (five in number working as outpatient clinics in the Holy Mosque), Ajyad hospital, Al-Noor hospital, King Abdul Aziz hospital, Mina General Hospital and 5 dispensaries in Mina.

The total number of cases was 1331; 1034 (77.7%) were hajjees, and 289 (22.3%) were non-hajjees. The total number of hajjees in this hajj season was 2371468, and an incidence rate of injuries of 5.61/ 10000 was calculated.

Among Hajjees 797 (71.1%) were males and 237 (22.9%) were females (male to female ratio of 3:1). Their mean age was 47 years (SD 16.5). Among non-hajjees there were 239 (82.7%) males and 50 (17.3%) females (male to female ratio of 5:1). The mean age was 26.4 years (SD 20.1).

Among hajjees, the highest incidence rate of injury occurred in the 33-44 year age group, (331 cases or 32.9%) and the lowest was in the 15-29 year age group (140 cases or 13.9%). Among non-hajjees the highest rate occurred in the 15-29 age group (133 cases or 64.9%) and the lowest in the 60 and over age group (10 cases or 4.9%).

The health facility that received the highest number of injured hajjees was

Al-Haram dispensaries (58.7%), while Al-Noor hospital received the highest number of injured non hajjees (66.8%). Among hajjees, the highest frequency of injuries occurred among those of Other Arab countries (OAC) (514 cases or 49.7%), followed by Indian subcontinent hajjees (ISC) (204 cases or 19.7%). Among non hajjees, the highest frequency of injures was among the Gulf cooperation council group (GCC) (71.6%), and the lowest was among Central Asian hajjees (1%).

Regarding cause of injury (table 1), it was not documented for 49.9% of hajjees and 40.1% of non-hajjees. The most common type of injury among male hajjees was cut wounds (31.7%), and among female hajjees was fractures (25.7%). The most common type of injury among male non-hajjees was cut wounds (34.9%), and among female non-hajjees was contusions (25.4%).

The major limitation of this study was the unsatisfactory quality of data documented in the Emergency Room log-books, which may be attributed to the high work load of physicians and medical personnel in the selected medical facilities, and insufficient time to complete the forms, especially during Hajj season.

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Editorial notes: During hajj, there

are certain activities that need to be performed at the same time by all hajjees. The sites where these activities take place are usually very crowded and hajjees are given to pushing each other, which increases the risk of injury. Injury may occur to Hajjees sleeping in Al-Haram, as a result of tripping over them. In Mina, hajjees push each other to reach Al Jamarat, they may sleep on the street or under bridges, which increases the risk of injury.

In a study conducted by Al Mazam and co-workers investigating the pattern of fractures in Makkah during the hajj and non-hajj seasons of 1417/1418 H, the incidence of fractures was reported to increase three fold during hajj in comparison to control months. Most of the injuries occurred among hajjees over 60 years of age, and the incidence of fractures was higher among males (79%) than females (21%).²

The problem of injuries during hajj may be handled by adequate health education of hajjees. Doctors and health workers in medical facilities during hajj season have to be instructed on the importance of completing the hajj form supplied by MOH during that time.

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Table 1: Gender wise type of injury among hajjees and non-hajjees

Type of injury	Hajjees		Non-hajjees	
	Males	Females	Males	Females
Contusion	26.90%	25.30%	27.90%	25.40%
Burn	4.60%	3.80%	3.60%	3.80%
Trauma	20.60%	25.30%	20.20%	24.70%
Fracture	10.20%	25.70%	8.80%	23.30%
Cut wound	31.70%	19%	34.90%	18.80%
Laceration	9.80%	7.20%	9.30%	7.70%
Abrasion	13.10%	6.80%	14.70%	8.40%
Penetrating	1.40%	1.70%	1%	2.10%
Crushing	4.70%	4.60%	5.40%	4.90%

ملخص باللغة العربية

يتوجب على وزارة الصحة وضع الاحتياطات اللازمة لحماية المواطنين بمكة المكرمة والمدينة المنورة من خطر الإصابة بالمرض خلال مواسم الحج والعمرة وذلك بالتأكد من تطعيمهم باللقاح الرباعي والرفع من مستوى الوعي الصحي بينهم وحثهم على التعاون مع حملات التطعيم التي تقوم بها الوزارة وتعريفهم بأهميتها. بالإضافة، فإن سياسة وزارة الصحة بتخصيص العلاج الوقائي Ciprofloxacin أثبتت نجاحها باستمرار ففعاليتها لازالة بكتيريا النيسيريا من حاملي هذا الميكروب في التجويف الانفي الحظي.

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دراسة سلوكيات الحجاج المعرضة للإصابة بالأمراض أثناء حج عام ١٤٢٢هـ

أجريت هذه الدراسة للتعرف على السلوكيات المسببة للأمراض بين ١٥٠٠ حاج من جنسيات مختلفة باستخدام الطريقة العنقودية المتعددة الخطوات.

أوضحت الدراسة أن ٨٧% من حجاج الداخل و ٩٠% من حجاج الخارج أخذوا التطعيم ضد الحمى الشوكية عند وصولهم لأداء شعائر الحج، وأدى نسبة كانت عند حجاج ماليزيا ٤٦% وحجاج إندونيسيا ٧٨% وذلك لأن عددا منهم أخذوا التطعيم بعد وصولهم المملكة. وكان ٣٠% من الحجاج قد استخدموا أحد المرافق الصحية وذلك غالبا لعلاج آلام الحلق بنسبة ٧٣%. وكان ٧٠% من الحجاج قد تلقوا توعية صحية معظمهم بعد وصولهم إلى المملكة. وكان ٢% من الحجاج قد حلقوا رؤوسهم باستخدام شفرات حلقة مستعملة. كما أن ٣٣% من الحجاج استخدموا كمام الأنف غالبيتهم من ماليزيا ٧٢%، و إندونيسيا ٧٦%، وإيران ٧٩%.

أظهرت الدراسة انه هناك حاجة لتقوية برنامج التحصين ضد الحمى الشوكية عند حجاج جنوب شرق آسيا، كما يجب توعية الحجاج بضرورة استخدام كمام الأنف لمنع عدوى الجهاز التنفسي وعدم استخدام شفرات الحلقة المستعملة.

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ونسبة الأميين بلغت ٣١,٢% في مكة و ٣٢,٥% في المدينة.

وجد اختلاف واضح في نسبة المطعمين ضد الحمى المخية النيسيرية، حيث بلغت في مكة ٧١,١% وفي المدينة ٥٩,٩%. معظم المطعمين كانوا يعرفون نوع التطعيم سواء في مكة (٥٤,٦%) أو في المدينة (٧١,٧%). بلغ عدد المطعمين باللقاح الثاني ٣٤٣ (٣٤,٦%) في مكة و ١٤٥ (١٧,٣%) في المدينة، و باللقاح الرباعي ١٠٧ (١٠,٨%) في مكة و ٩٣ (١١,١%) في المدينة.

بلغ إجمالي المسحات الحلقية التي تم زراعتها ٢٧٩٧ مسحة، منها ٨٦ (٣%) إيجابية لمختلف أنواع ميكروب الحمى المخية. أما ميكروب النيسيريا فقد وجد في ١٦ من ٤٩ مزرعة إيجابية بمكة المكرمة غالبيتها (٩) ذات النمط W135 و ٣ ذات النمط B وواحد لكل من النمط Z و Y و D بينما الأخير لم يتمكن المختبر من تحديد النمط. أما من العينات الإيجابية في المدينة المنورة، فقد وجد ميكروب النيسيريا في ٢ من ٣٧ مزرعة إيجابية جميعها ذات النمط W135. وبهذا يكون نسبة حاملي ميكروب النيسيريا السحائية ١,١% في مكة المكرمة، و ٠,١% في المدينة المنورة. ولم يوجد اختلاف بين مختلف الفئات التي شملتهم الدراسة بالنسبة لحملهم لميكروب النيسيريا سواء الأكثر خطورة أو الأقل عرضة للخطورة حيث كانت النسبة ٠,٧% و ٠,٦% على التوالي.

أوضحت الدراسة أن الأعمار الأقل من خمسة سنوات هم أعلى نسبة حمل للميكروب (٨,٣%) مقارنة مع بقية الفئات العمرية. و الرجال حاملين للميكروب (٠,٧%) أكثر من النساء (٠,٤%)، و السعوديين أقل (٠,٥%) مقارنة بالجنسيات الأخرى (٠,٨%)، ولكن لم توجد علاقة إحصائية قوية بين جميع تلك الاختلافات.

كما وجد من خلال الدراسة أن الذين يعيشون في مكة المكرمة أكثر ثمان مرات عرضة ليصبحوا حاملين لميكروب النيسيريا مقارنة مع الذين يعيشون في المدينة المنورة (OR=8.1) النسبة كذلك بالنسبة للرجال (95% CI=2.1-52.3) مقارنة بالنساء، والسعوديين مقارنة بالجنسيات الأخرى (OR=0.6, 95% CI=0.2-1.6). و لم تثبت الدراسة وجود تأثير فعلي على نسبة حاملي ميكروب النيسيريا بين من هم مطعمين أو غير مطعمين أو ممن سبق لهم تناول مضاد حيوي قبل أربعة أسابيع من أخذ المسحة الحلقية.

بالنسبة لفعالية العلاج الوقائي Ciprofloxacin لإزالة ميكروب النيسيريا من الحلق، فقد أعطي جميع الذين وجدوا إيجابيين لميكروب النيسيريا جرعة واحدة من العلاج الوقائي (٥٠٠ mg). وبعد ٤٨ ساعة، أخذت منهم مسحة حلقية أخرى. نسبة فعالية العلاج الوقائي كان ١٠٠%، حيث أن جميع المسحات الحلقية التي أخذت كانت سلبية لميكروب الحمى المخية النيسيرية.

نتائج الدراسة أوضحت أن مدينتي مكة المكرمة والمدينة المنورة خاليان من بؤر مرض الحمى المخية النيسيرية في الفترة قبل موسم الحج.

نسبة إنتشار حاملي ميكروب النيسيريا السحائية في مكة المكرمة والمدينة المنورة قبل موسم حج عام ١٤٢٢هـ

مرض الحمى المخية النيسيرية من الأمراض التي تتسبب بالتهاب أغشية المخ والحبل الشوكي. وقد قدرت نسبة الوفيات للمصابين ما بين ٥-١٠% إذا لم يتم التشخيص والعلاج مبكراً. و هو ينتج غالبا عن الأنواع A,B,C ولكن الدراسات الحديثة وجدت بأن هناك تزايد في الحالات الناتجة عن النوع W135 في بعض الدول ومنها المملكة العربية السعودية. وقد أثبتت الدراسات أن ٣٠% من السكان قد يحملون الميكروب خلال فترة حدوث وباء أو بعده دون أن يظهر عليهم المرض، ويكون متركزا في التجويف الأنفي الحظي. الهدف من هذه الدراسة معرفة معدل انتشار حاملي ميكروب الحمى المخية النيسيرية بين الفئات الأكثر عرضة للخطورة (العاملين بالحرم، والبانئين المجاورين للحرم) و الفئات الأقل عرضة للخطورة (أفراد المجتمع) من مواطنين ومقيمين بمدينتي مكة المكرمة والمدينة المنورة قبل موسم الحج، ومعرفة أنماط البكتيريا المخية النيسيرية بين حاملي الميكروب، وقياس فعالية العلاج الوقائي (Ciprofloxacin) للقضاء على الميكروب بين الحاملين له.

تم اختيار العينات من العاملين بالحرم بطريقة عشوائية، اختير ٣٥٠ بمكة المكرمة ومثلهم بالمدينة المنورة. أما العينات للعاملين بالمحلات التجارية فقد اختيرت من خلال عنقود عشوائية للمحلات التجارية في كل الأرباع اتجاهات من الحرم، ثم أخذ جميع العاملين في المحلات التجارية إلى أن وصل العدد إلى ٨٨ من كل إتجاه سواء في مكة المكرمة أو المدينة المنورة. أما العينات التي اختيرت من مراكز الرعاية الصحية الأولية فقد شملت سبعة مراكز صحية كمنافذ تم إختيارها عشوائياً. تم إختيار ١٠٠ شخص من كل مركز موزعين بالتساوي بين قسمي الرجال والنساء باختيار واحد من كل خمسة مراجعين.

خلال الفترة من ١١/٢٨-٣/١١/٢٠٢٢هـ تمت مقابلة وأخذ مسحات حلقية من ٢٧٩٧ شخص، منهم ١٣٩٥ (٤٩,٩%) بمكة المكرمة و ١٤٠٢ (٥٠,١%) بالمدينة المنورة. شملت العينة المختارة من مكة المكرمة: العاملين بالحرم (٣٥٠) والعاملين بالمحلات التجارية المجاورة للحرم (٣٤٥) بالإضافة إلى ٧٠٠ شخص تم إختيارهم من ٧ مراكز رعاية صحية أولية. بالنسبة للمدينة المنورة شملت (٢٤٨) من العاملين بالمسجد النبوي و (٤٥٤) من العاملين بالمحلات التجارية و (٧٠٠) شخص من ٧ مراكز رعاية صحية أولية.

بلغت أعمار العينة المختارة سواء في مكة أو المدينة ما بين سنتين و ٨١ سنة بمتوسط عمري ٣٢,٦ (± ١٣,١ سنة) في مكة و ٣١ (± ١٢,٩ سنة) في المدينة. بلغت نسبة الذكور ٧١,٨% في مكة و ٧٣,٨% في المدينة. وكانت نسبة السعوديين في مكة أقل بقليل (٤٥,٤%) من المدينة (٥٦,٣%)، ونسبة المتزوجين الأعلى سواء في مكة (٦٠,٧%) أو المدينة (٥٦,٨%)،

Neisseria Meningitidis Colonization, cont...

(Continued from page 18)

tion status, antibiotic use and bedroom area.

All the 18 *N. meningitidis* positive participants who received a single dose of ciprofloxacin were found culture negative on swabs collected 48 hours later, thus the efficacy of the single dose of Ciprofloxacin (500mg) was 100%.

— Reported by: Dr. Ahmad Nasser Kholeidi, Dr. Adel M. Turkistani, Dr. Randa M. Nooh, Dr. Khaled Bajeri (Field Epidemiology Training Program).

Editors notes: Saudi Arabia has frequently been affected by meningococcal epidemics. It has witnessed major outbreaks of MCD in 1987, 1988, 1992, 2000 and 2001.^{1,2,3} This study has demonstrated that MCM is not endemic neither in Makkah or Madinah and the pilgrims coming for hajj might be the source of infection for the outbreaks associated with Hajj, locally or internationally.

The difference in carriage rate between Makkah and Madinah populations revealed an increased risk among the Makkah population to acquire meningococcal meningitis infection. This higher carriage rate in Makkah may be explained by the fact that the majority of the religious visitors travel primarily to Makkah, which is much more crowded with hajjis than Madinah, especially in and around Al-Haram.

The overall vaccination coverage with Meningococcal vaccine was significantly lower than reported in many studies conducted during the past few years. Higher vaccination coverage rates have been reported in previous studies held in 1413 H (85.9%)⁴, 1416 H (98.5%)⁵, and 1997 (87.1%)⁶, however, these studies had only targeted pilgrims, who are required to have a valid vaccination prior to arrival in Saudi Arabia. Study results are slightly higher than that of a study conducted in the Riyadh population in year 2002, that demonstrated a vaccination coverage of 51% (unpublished).⁷ The low vaccination coverage rates observed in this study, however are hardly acceptable, especially with vaccination cam-

paigns held every year in these two Holy Cities. It is recommended that the vaccination campaign along with health education should be started early before arrival of religious visitors.

As the single dose of 500 mg of Ciprofloxacin was found to be 100% effective in eradicating colonization. Regular use of a single dose of ciprofloxacin is recommended for hajjis on their arrival to Saudi Arabia, especially those coming from endemic areas of MCM. Ciprofloxacin is also indicated for returning domestic pilgrims, to reduce the risk of transmission to close contacts. International Health Missions should be advised to administer ciprofloxacin to their pilgrims at the time of return to their home countries to reduce the risk of transmission in their countries.

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Selected notifiable diseases by region, Jul—Sep 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	0	3	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	18
Mumps	24	9	22	0	24	15	13	10	5	15	5	7	8	1	2	19	1	2	0	1	1	183
Rubella	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Varicella	1468	321	692	193	364	1049	785	447	402	711	146	327	173	84	62	166	84	21	27	19	19	7541
Brucellosis	126	7	5	68	28	280	75	19	61	258	50	7	160	13	29	24	16	25	4	1	1	1256
Meningitis mening	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5
Meningitis other	40	5	20	30	9	13	3	11	3	7	0	3	4	0	0	0	1	2	0	4	4	155
Hepatitis A	70	12	36	1	37	46	20	12	31	37	29	13	72	5	6	61	13	4	3	1	1	509
Hepatitis B	186	105	300	26	86	40	127	5	1	53	10	13	5	20	7	3	54	2	0	4	4	1047
Hepatitis C	120	106	283	11	29	34	99	13	0	16	14	10	3	1	0	1	24	1	1	0	0	766
Hepatitis unspecified	44	15	23	0	6	0	2	8	0	61	0	16	9	0	70	8	3	0	0	0	0	265
Typhoid & pratyphoid	14	7	1	0	2	3	7	2	0	14	3	3	13	5	5	0	1	0	0	1	1	81
Amoebic dysentery	6	1	455	17	6	1	23	9	3	121	45	0	4	0	27	8	20	0	1	0	0	747
Shigellosis	14	0	6	0	6	4	28	9	1	0	2	4	0	2	0	17	0	0	0	0	0	93
Salmonellosis	118	6	58	12	0	7	348	39	16	3	27	32	1	0	0	26	14	0	0	0	0	707
Syphilis	1	0	5	0	0	0	7	3	0	0	0	0	1	0	0	0	4	0	0	1	1	22
VD, other	6	0	16	0	0	0	18	39	1	4	1	0	0	0	2	0	0	0	0	0	0	87

Comparisons of selected notifiable diseases, Jul - Sep 2001-2002

Disease	Jul-Sep 2002	Jul-Sep 2001	Change %	Jan-Sep 2002	Jan-Dec 2001	Disease	Jul-Sep 2002	Jul-Sep 2001	Change %	Jan-Sep 2002	Jan-Dec 2001
Diphtheria	3	0	300	9	0	Meningitis other	171	131	31	527	604
Pertussis	14	13	8	31	35	Hepatitis A	521	735	-29	2269	3069
Tetanus neonat	6	13	-54	18	27	Hepatitis B	1176	1047	12	3407	3864
Tetanus other	3	1	200	10	8	Hepatitis C	879	687	28	2431	2608
Poliomyelitis	0	0	0	0	0	Hepatitis unspecified	277	289	-4	942	1414
Measles	18	21	-14	255	155	Typhoid & pratyphoid	83	103	-19	302	367
Mumps	194	201	-3	648	941	Amoebic dysentery	913	797	15	2295	2772
Rubella	4	7	-43	9	16	Shigellosis	95	105	-10	317	589
Varicella	7931	5206	52	37086	32642	Salmonellosis	739	517	43	1785	1927
Brucellosis	1259	1147	10	3701	4865	Syphilis	26	39	-33	93	136
Meningitis mening	5	32	-84	52	316	VD, other	90	89	1	238	395

Diseases of low frequency, Jul - Sep 2002

Yellow fever, Plague, Poliomyelitis, Rabies: No cases

Peurperal Sepsis: one case (Riyadh)

Pertussis: 14 cases (Eastern 4, Riyadh 2, Madinah 2, Gonfudah 2, Makkah 1, Jeddah 1, Jazan 1, Najran 1)

Tetanus neonatal: 6 cases (Makkah 5, Jeddah 1)

Echinococcosis: 6 cases (Bisha 3, Riyadh 1, Baha 1)

Guillain-Barre syndrome: 18 cases (Riyadh 5, Eastern 4, Jeddah 3, Makkah 1, Qassim 1, Hafr Al-Batin 1, Asir 1, Taif 1, Jazan 1)

Hemolytic uremic syndrome: 19 cases (Eastern 16, Hail 3)

Diphtheria: 3 cases (Makkah)