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## EPIDEMIOLOGICAL SURVEY OF INFECTIOUS DISEASES IN BASRAH PROVINCE

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### Abstract

A prospective study that included 469 cases presented with different types of significant infectious diseases. This demonstrated their incidence in relation to age, sex and seasonal variation in Basrah province. We found that gastroenteritis due to different types of infectious agents was the most common illness (79%), followed by meningitis (8.5%). The cases of gastroenteritis were more frequent in October and November, and then the incidence decline significantly in the following months (winter). Gastroenteritis and meningitis were most commonly seen among children during the first year of age. The total male to female ratio that affected by infectious diseases was 1.08:1.

**Key words:** Infectious diseases , Gastroenteritis, Meningitis

### 1. Introduction

The health condition of a nation's people is determined, to a large extent, by their ability to control effectively microbial population. The procedure may be specific, such as providing medication to eliminate an infectious microorganism from the body, or they may be more general, such as the sanitary practices in the home or hospital. Every day practices such as water purification, and food preservation accomplish control of microbial population [1]. In addition, vaccination to several

known serious infectious diseases plays a major role in controlling them.

Antimicrobial drug resistance is perhaps one of the most alarming threats among the problems presented by new emerging infections. A very important aspect entails monitoring sensitivities to antibiotics in each country to allow for optimum selection of effective antibiotic use for individual cases and to eliminate antibiotics with little therapeutic value [2].

This study was performed to estimate the incidence of certain important infectious

diseases with correlation to age, gender and

season in Basrah province.

## 2. Patient and methods

This is a prospective study extended from October 1994 to May 1995. The study included 469 cases presented to governmental health centers with different types of infectious diseases. The cases were collected from 24 health centers in Basrah province. The recorded cases in each health center represented the serious cases of infectious diseases that attended to those centers. The cases were diagnosed

clinically with supporting laboratory tests as required in certain cases. The suspicious cases, in which the diagnosis was not confirmed, were excluded from this study. The areas that included in this study represent urban and rural areas. All age groups were involved. Laboratory tests for identification of pathogens were done by conventional methods.

## 3. Results

The total number of cases that presented with different type of infectious diseases was 469. As shown in Table 1, gastroenteritis was the commonest illness (79%), followed by meningitis (8.5%) and viral hepatitis type A (2.7%). Gastroenteritis and meningitis were found more common within patients during their

first year age, Table 2. In addition, gastroenteritis frequently encountered during October and November. After that the incidence decreased during winter season, Table 3. Chickenpox was only observed during April and May (spring season).

**Table 1. The incidence of infectious diseases with male to female ratio.**

Disease	Total No.	%	Male No.	Female No.	Male: Female ratio
Gastroenteritis	372	79	193	179	1.08:1
Meningitis	40	8.5	22	18	1.22:1
Viral hepatitis type A	13	2.7	7	6	1.16:1
Poliomyelitis	9	2	6	3	2:1
Tuberculosis	8	1.7	4	4	1:1
Chickenpox	8	1.7	1	7	1:7
Typhoid fever	7	1.5	4	3	1.33:1
Mumps	3	0.6	2	1	2:1
Brucellosis	2	0.4	1	1	1:1
Diphtheria	2	0.4	0	2	0:2
Malaria	2	0.4	2	0	2:0
Measles	1	0.2	1	0	1:0
Syphilis	1	0.2	0	1	0:1
Anthrax (cutaneous)	1	0.2	0	1	0:1
Total	469	100	243	225	1.08:1

**Table 2. The number of cases of infectious diseases in relation to the age groups.**  
Age groups

Disease	1-12 months	>1-10 years	>10 years
Gastroenteritis	89	144	139
Meningitis	16	10	4
Viral hepatitis type A	2	3	8
Poliomyelitis	2	6	1
Tuberculosis	0	2	6
Chickenpox	1	7	0
Typhoid fever	0	1	6
Mumps	0	2	1
Brucellosis	0	0	2
Diphtheria	0	0	2
Malaria	0	0	2
Measles	0	1	0
Syphilis	0	0	1
Anthrax (cutaneous)	0	0	1

**Table 3. The number of cases of infectious diseases by each month.**  
Number of cases in each month

Disease	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May
Gastroenteritis	225	99	35	4	5	0	1	3
Meningitis	7	8	7	4	4	6	3	1
Viral hepatitis type A	0	2	2	1	0	2	3	3
Poliomyelitis	0	0	2	0	3	3	0	1
Tuberculosis	1	1	2	1	0	1	2	0
Chickenpox	0	0	0	0	0	0	1	7
Typhoid fever	3	0	0	2	1	0	0	1
Mumps	0	0	0	2	0	0	1	0
Brucellosis	0	0	0	1	0	1	0	0
Diphtheria	0	0	0	0	2	0	0	0
Malaria	0	0	0	0	0	1	1	0
Measles	0	0	1	0	0	0	0	0
Syphilis	1	0	0	0	0	0	0	0
Anthrax (cutaneous)	0	0	0	0	0	0	0	1

Table 1 shows that the following illnesses were more frequent in males than females:

mumps, poliomyelitis and malaria, in which the male to female ratios were (2:1), (2:1)

and (2:0) respectively. On the contrary, the females were more commonly affected than males in cases of chickenpox and diphtheria, in which the male to female ratios were (1:7) and (0:2) respectively. In

respect of other infectious diseases, the incidence was either slightly higher in

males or there were equal ratios.

#### 4. Discussion

In the present study, we found that serious infectious diseases (such as meningitis and poliomyelitis) are still a problem in Basrah province in spite of extensive use of vaccination by health authorities. There are many factors that may play a role in the emergence of these diseases. That unsuitable storage as a result of electricity shortage may reduce the efficiency of vaccines. There was no national or international flight. Therefore, land transportation needs longer time under unsuitable conditions where the weather may be extremely hot. In addition, some families don't send their children for vaccination because they are unaware about the importance of the vaccines. Certain vaccines were also unavailable continuously in the routine vaccination program such as that used for meningitis prevention. Finally, malnutrition due to economic sanctions played a role in reducing the immunity against infectious diseases in spite of performing active immunization. It has been estimated that more than 12% of children less than five years of age in Iraq were malnourished [3]. This happened obviously during an outbreak of pertussis in Basrah in 1996 that most of the affected patients were immunized [4].

In addition to immunization, there are other preventive measures that can be used to control infectious diseases. These include, first of all diagnostic methods, such as that used for detecting hepatitis B virus antigen before blood transfusion is an important preventive procedure [5,6]. Furthermore, an introduction of new antibiotics met the need for special treatment among patients who did not respond to conventional antibiotics [7].

Gastroenteritis was the most frequent ailment (79%) in this study, especially in those within the first year of age. While a small proportion of those cases were due to

bacteria or protozoa, many had no known cause. However, researchers showed that rotaviruses were a major cause of non-bacterial diarrhea in infants and children [8].

The second most common infectious disease encountered during the present study was meningitis (8.5%), which was more common in infants. In coincidence with our study, Al-Timimi in 1991 found that meningitis was more common during the age of first year. She also found that

the most common aetiological agent of meningitis was *Haemophilus influenzae*, which was obtained during her study in Basrah city [9]. Meningitis due to group B meningococci was found to be the most frequent type in the US [10,11], in which each year also there are 30000 cases of meningitis due to *Haemophilus influenzae* [12]. Meningococcal vaccines were developed for group A and C [13]. The vaccines have already shown to be of value in control of epidemics in various parts of the world [12].

Viral hepatitis type A was found to be the third most common infectious disease (2.7%). The most likely predisposing factor is contaminated food or water (feco-oral route).

Poliomyelitis (2%) is still a problem in this country in spite of massive immunization that has been used for this particular tragic disease in collaboration with World Health Organization. During the 1970s mass immunization against poliomyelitis was continued in the world as extension of programs started in 1950s and 1960s [14]. In the beginning of 1980s, there were fewer than 10 cases of poliomyelitis each year in the US due to extensive use of vaccination [12].

Other infectious diseases seem to be still common in Basrah province such as tuberculosis (1.7%), chickenpox (1.7%) and

typhoid fever (1.5%). Regarding these diseases, there are no effective vaccines that prevent infection. However, the prevention can be established by improvement of water supply, better living accommodation, good community hygienic level and improvement of nutritional status.

The remaining diseases that encountered in this study appear to be less common. These included: mumps (0.6%), diphtheria (0.4%), brucellosis (0.4%), malaria (0.4%), measles (0.2%), syphilis (0.2%) and anthrax (0.2%).

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## دراسة وبائية عن مدى انتشار الأمراض الانتقالية والسارية في محافظة

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### الخلاصة

دراسة مستقبلية اشتملت على 469 حالة أصيبت بمختلف الأنواع من الأمراض السارية أو الإنتقالية والتي تعتبر ذات أهمية كبيرة. الدراسة أظهرت نسبة حدوث الأمراض الانتقالية وعلاقتها بالعمر والجنس والفصول المناخية لمحافظة البصرة. لقد وجدنا بأن حالات الاسهال والتقيء (إلتهاب المعدة والأمعاء) والمتسببة من فايروسات أو جراثيم متعددة هي من أكثر الأمراض السارية انتشارا (79%)، تليها حالات إلتهاب السحايا (8.5%). إن حالات التقيء والاسهال كانت أكثر انتشارا في شهر تشرين الأول وتشرين الثاني وبعدها انحسر نسبة ظهور المرض بشكل ملحوظ في فصل الشتاء. إلتهاب المعدة والأمعاء وإلتهاب السحايا وجد أكثر شيوعا لدى الأطفال في السنة الأولى من العمر. إن نسبة إصابة الذكور الى الإناث بالأمراض الإنتقالية كانت 1.08 الى 1.

المفتاح : لمراس السارية, الاسهال التقيؤ, السحايا