

SEASONAL VARIATION OF TYPHOID FEVER IN KIRKUK CITY ⁺

انتشار حمى التايفوئيد في مختلف فصول السنة في مدينة كركوك

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Abstract:

A retrospective study was carried in Kirkuk city for period from 2001 – 2004, to show the prevalence of typhoid fever among patients attended Kirkuk Hospitals (General Hospital , Azady Hospital and Primary Health Centers) . It was found that the distribution of the disease was highest in 2003 followed by 2002, 2001 and 2004. The rate of the disease was highest in female than male.

The highest rate of infection was in autumn (39.3%) followed by summer (38.6 %), winter (35.8 %) and spring (34.5 %).

It is concluded that the rate of Typhoid fever was high in Kirkuk city(38.57 %).

Key Words: Kirkuk , Typhoid fever

المستخلص:

اجريت هذه الدراسة الرجعية في مستشفيات كركوك (كركوك العام ، ازادي ، والمراكز الصحية) للفترة من سنة ٢٠٠١ لغاية ٢٠٠٤ وذلك لمعرفة مدى انتشار حمى التايفوئيد بين المراجعين لمستشفيات كركوك .
ووجد أن أعلى نسبة للمرض كانت في عام ٢٠٠٣ (٤٤,٠٢%) ، ويتبعها ٢٠٠٢ (٤١,٠٦%) ، ٢٠٠١ (٣٧,٠٧%) ثم ٢٠٠٤ (٣٤,٦٣%) وكذلك نسبة الإصابة في الإناث كانت أعلى من الذكور .
أما بالنسبة الى فصول السنة حيث ان المرض كان أكثر انتشاراً في فصل الخريف (٣٩,٣%) ثم يتبعها الصيف (٣٨,٦%) ثم الشتاء (٣٥,٨%) ثم الربيع (٣٤,٥%) .
نستنتج من هذه الدراسة ان نسبة انتشار المرض كانت عالية في مدينة كركوك (٣٨,٥٧%).

Introduction

Typhoid fever is an acute communicable disease caused by *Salmonella typhi*. It is usually transmitted by contaminated water or food [1] .

Typhoid fever occurs in all parts of the world, but the disease has declined a good deal in the western countries due to improvement in sanitation and water supply. An estimated 16 million cases of typhoid fever and 600,000 related deaths occur world wide each year [2].

The risk is greatest in developing countries where hygiene and sanitation are poor, but particularly the Indian subcontinent, Asia, Africa and Central and south America [3].

It has been reported that typhoid fever cases constitute (1.8%) of the total admission to Al-Tameem General Hospital in kirkuk city [4].

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The present study was planned to show the prevalence of typhoid fever among inpatients and out patients attended kirkuk hospitals and PHCC in different seasons in Kirkuk city , for the period from 2001-2004 .

Materials and methods:

A retrospective study was carried out in kirkuk city for the period from beginning of September 2001 until end of December 2004.

The study included (1639) males and (3416)females , were recorded from kirkuk hospitals (General Hospital , Azady Hospital and four Primary Health Centers) , in whom the diagnosis of typhoid fever was confirmed clinically and by laboratory investigations (2001 – 2004) .

Typhoid fever is an acute communicable disease caused by communicable disease *Salmonella typhi* .It is transmitted usually by contaminated water or food, clinically it is characterized by prolonged fever with involvement of lymphoid tissues and considerable Constitutional disturbances the disease varies in severity, and many mild cases probably go Unrecognized. The term enteric fever includes both the typhoid and paratyphoid fever. [5]

The data were collected from the diagnosed cases of typhoid fever from Kirkuk hospitals and Primary Health Centers.

Typhoid fever cases were diagnosed by using widal test with titer of 1:320.

Result and discussion:

Table (1) shows the distribution of typhoid fever in Kirkuk city according to years, the highest rate of infection was recorded in 2003 (44.02%) followed by 2002 (41.06%) , 2001 (37.07%) and the lowest rate was in 2004 (34.63%). Statistically there was significant difference between years ($p < 0.05$).

The variation in the distribution of typhoid fever in different years, might be due to lack of diagnostic facilities in medical laboratories in different years. Comparing this result with that reported in Iraq, before Gulf war in 1988-1989 it is shown that the rate of typhoid fever was much lower than that reported in the present study[6].

It was shown the rate of disease ranging from 11.6-11.3/100.000. That reflects that the people in Iraq during that years were enjoying fairly good standard of living [6]. The same reports showed that the incidence of disease increased during economic sanction against the country it was found the rate of infection from 1991-1994 were 112.8 , 119.9 , 112.5 , and 142.1/100.000 population respectively [6]..

Table (1):- Distribution of typhoid fever according to years

Year	Number Examined	Number Positive	Positive percentage %
2001	2158	800	37.07
2002	974	400	41.06
2003	895	394	44.02
2004	1028	356	34.63
Total	5055	1950	38.57

$\chi^2=7.814$

D.F=3

$p < 0.05$

It is indicated in table (2), that the rate of typhoid fever among females (40.39%) was significantly higher than males (34.77%) .

Regarding the sex distribution, the rate of typhoid fever was higher in females than males . This might be due to most females were house wives they could be regarded as food handlers and processors . They are the first victim who is exposed to food stuff in the house even before cooking . Therefore they attract the infection more than other family members. This finding is also reported by Tarish [4] and Ali [7] in Kirkuk city.

Table (2) : Distribution of Typhoid fever according to sex

sex	Number Examined	Number Positive	Positive percentage %
Male	1639	570	34.77
Female	3416	1380	40.39
Total	5055	1950	38.57

$\chi^2=3.841$

D.F=1

$p < 0.05$

Table (3) indicate the distribution of typhoid fever according to months of year. It is obvious that the disease is widely distributed throughout the year with the highest rate of infection in September (55.83%) followed by August (45.03%)

It seems from the results of this study, that typhoid fever is distributed during all months of the year, with the peak was in September. This finding is in agreement with that reported in Iraq [8 & 9] who reported the peak of the disease in August and September and in India [5] who reported the peak incidence of disease in July, August and Sept

Table(3) : Distribution of typhoid fever according to months .

Months	Number Examined	Number Positive	Positive percentage %
January	383	131	34.20
February	267	85	31.20
March	315	108	34.28
April	640	240	37.5
May	745	301	40.40
June	699	241	34.47
July	419	177	42.24
August	584	263	45.03
September	360	201	55.83
October	352	104	29.54
November	84	8	9.52
December	207	91	43.96
Total	5055	1950	39.57

Table (4), shows the distribution of typhoid fever according to seasons . It is revealed that the highest rate of typhoid fever was in autumn (39.3%), then followed by summer (38.6%), winter (35.8%), then spring(34.5%).

Statistically there was significant difference between seasons

months	seasons	Number Examined	Number Positive	Positive percentage %
(Dec-Feb)	Winter	857	307	35.8
(Mar- May)	Spring	1222	433	34.5
(Jan – Aug)	Summer	1863	719	38.6
(Sep – Nov)	Autumn	796	313	39.3
	Total	4738	1772	38.75

$$X^2 = 2.428$$

$$D.F=3$$

$$p < 0.05$$

Conclusion :

It is concluded that the typhoid fever is highly distributed in Kirkuk city(38.57%).

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