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Prevalence rate of Salmonella in Babylon province

Hydar Hamza Ibraheem AL-Taie

Summary

Three handed stool samples of an a apparently normal adults individuals comprising hospital personnel , buffalo owners and employers processing chicken were collected and examined during period from January 2008 to January 2009 to investigate the presences of Salmonella in Babylon province. Out of the total 300 samples examined by stool cultures on different media confirmed by biochemical tests and the isolated was serotypes on central lab. Result showed that 17 samples gave positive results for salmonella which comprise 5.66% of total percentage and Buffalo owners revealed the highest carrier rate 8 % .

انتشار الاصابة ببكتريا السالمونيلا في منطقة بابل

حيدر حمزة إبراهيم

هيئة التعليم التقني / المعهد التقني بابل

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الخلاصة

تم جمع ثلاثمائة نموذج خروج من اشخاص بالغين ظاهريا طبيعين (عمال مستشفيات ، أصحاب حيوانات و عمال تصنيع دواجن) وذلك للتحري عن وجود Salmonella جرثومة خلال المدة ما بين شهر كانون ثاني 2008 إلى شهر كانون ثاني 2009 في محافظة بابل , من مجموع 300 نموذج فحصت بواسطة الزرع البكتريولوجي للبرازعلى اوساط زرعية مختلفة ثم ارسلت النماذج للمختبر المركزي وجد 17 نموذج اعطى فحصا موجبا لوجود جرثومة السامونيلا مثلت نسبة 5.66% وكانت أعلى نسبة للاصابة بهذه الجرثومة ضمن مربي الحيوانات اذ بلغت 8 % من مجموع الإصابات الكلية .

Introduction:-

The outcome of infections with *Salmonella* is influence by the dose of organism ingested, the serotype of *Salmonella* and resistance of host [1].

There are three division into which members of the genus may be placed according to their host preferences or adaptation , there are primarily adapted to man *(S. typhi)(S. paratyph*)or primarily adapted to the animals and un adapted (those attack man and animals [2].

Typhoid Mary was the most famous carrier *Salmonella* who worked for eight families and was responsible for seven epidemics Salmonella including over 200 persons [3].

Chronic carrier are rarely observed in childhood but increased with increasing age. They are more among females than males in a ratio of 3: 1 [4].

In typhoid fever and non-typhoidal Salmonellosis, two other factors have epidemiologic significance. First, an asymptomatic human carrier state exists for the agents of either form of the disease. Approximately 3% of persons infected with S typhi and 0.1% of those infected with non-typhoidal salmonellae become chronic carriers. The carrier state may last from many weeks to years. Thus, human as well as animal reservoirs exist. Interestingly, children rarely become chronic typhoid carriers. Second, use of antibiotics in animal feeds and indiscriminant use of antibiotics in humans increase antibiotic resistance in salmonellae by promoting transfer of R factors [5].

Every year, approximately 800,000 to 4 million cases of Salmonella result in 500 deaths in the United States. Children are the most likely to get Salmonella. Young children, the elderly, and the immunocompromised are the most likely to have severe infections[6].

Methods.

1- Specimens:-

Three hundred stool samples were collected during period from January 2008 to January 2009 from an a apparently normal adults individuals comprising 100 samples from hospital personnel ,100 samples from buffalo owners and 100 samples from employers processing chicken. Stool samples were collected in wide mouth sterile plastic containers and transported immediately to the laboratory for culture.

2- Isolation and identification:

Standard method was used to isolation and identification of Salmonella according to Macfaddin 2000 [6].

3 gram of stool collected from each person , 1 gm was inoculated in to 10 ml of selenit F broth and 1 gm inoculated into Tetrathonate broth for enrichment, culture broth were inoculated at 37 ^{0}c for 24 hours and subculture were then made on to XLD agar and S.S agar . All stool specimens in additions to being inoculated in to enrichment broth were cultured directly on to XLD agar and S.S agar. Isolates were identified as possible Salmonella by the absence of urease production (urease negative), isolates were then identified further by API 20 and serology in central lab .

Results:-

The incidence of Salmonella carrier in healthy individuals is summarized in table (1)

Buffalo owner revealed the highest carrier rate (8 %) , this is followed by hospital persons 5 % and employers (4%) and the total prevalence rate of Salmonella carrier was 5.66 %.

The incidence of Salmonella carrier among sexes in each groups was highly in females 7.87 % than that in mal was 5.78 % (table 2).

Number of strains from each serotypes of carrier in each section of the community studied is summarized in table 3, 4, 5 and 6.

An examination of 300 clinical fecal specimens found Salmonella in (17) specimens, including (3) detected by the direct plating on XLD agar, and an additional 14 cases detected after enrichment with selenite F broth and subculture on XLD agar and no isolates were recovered from direct plating with S.S agar and after enrichment with selenite F broth and subculture on S.S agar.

Table (1) Incidence of Salmonella carrier

Individual	No. of samples	No. of positive	Percentage
Buffalo owners	100	8	8 %
Hospital person	100	5	5%
employers processing chicken	100	4	4%
Total	300	17	5.66%

Table (2) Incidence of carrier according to sex.

Individual	No. of samples		No. of Positive		Percentage	
	F	M	F	M	F	M
Buffalo owners	44	56	2	6	4.54	10.71
Hospital person	33	67	2	3	6	4.47
employers processing chicken	50	50	3	1	6	2
Total	127	173	7	10	7.87	5.78

Not exist a difference between male and female so LSD has no mean (94%)

Table (3) serotypes of Salmonella isolated from stool culture

group	Serotype	No. of isolated	total
D	*S. enteritides*	1	5
	S. typhi	4	
B	*S. typhimurium*	2	6
	S. java	2	
	S. chaster	2	
E	*S. senftenberg*	1	4

	S. anatum	3	
C	*S. Thomson*	1	2
	S. emek	1	
Total		17	17

Table (4) serotypes isolated of Salmonella from Buffalo owners

Serotype	No. of strains
S. java	2
S. chaster	2
S. typhimurium	2
S. Thompson	1
S. typhi	1

Table (5) serotypes isolated of Salmonella from Hospital person

Serotype	No. of strains
S. anatum	2
S. typhi	1
S. emek	1
S. senftenberg	1

Table(6)serotypes isolated of Salmonella from employers processing chicken

Serotype	No. of strains
S. anatum	1
S. enteritides	1
S. typhi	2

Discussion:-

The differences with carrier rate between the community section may be due to some of them are contact with animals or animals products. this study shown the prevalence rate of Salmonella was 5.66 %, this result agreed with [3] which recorded that similar result was 7.29%, and this result did not agree

with others studies that recorded higher prevalence rate of Salmonella such as [7] reported that prevalence rate of Salmonella was 14.4 % and [8] reported that the faecal screening of symptomatic people 12.3 % while in patient was 0.8 % .

Other studies found lower infection rate, in Baghdad reported that the infection rate of Salmonella was 3.5 % [9] and [10] reported 4.5 % .

The reason of variation in ratio may be due to variations in capabilities of the laboratories in isolation of Salmonella that regions .The study showed that *S. typhi* was the most frequently isolated , this did not agree with [11] who reported that *S. senftenberg* was more frequent than *S. typhi* . [12]Found that *S. Zanzibar* was the most prevalence among isolates. The mass use of antibiotics and a wide exchange of food products as well as a fast movement of travelers may explain variation in the incidence of certain serotype of Salmonella. The study showed the higher percentage of carrier was found in population who are in contact with animals, many factors such as hygiene, social and economical factors and education may be effect the carrier rate [13] [14]. The result showed that uses of selenite F broth and subculture with XLD is the optimal combination to isolates Salmonella, this result agree with [15].

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