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SEROPREVALENCE OF TYPHOID FEVER IN CHILDREN OF DIFFERENT ETHNIC GROUPS OF BALOCHISTAN

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ABSTRACT: In present study total 2352 samples were collected out of that 21.04% were positive for Typhoid fever while 78.95% were negative. The sex wise distribution results showed male are more effected (12.71%) as compare to female (8.33%). However, the age wise distribution showed that 10.45% in 6-10 years, 6.54% in 3-6 years and 4.03% in 1-3 years. Moreover, the Typhoid fever cases were significantly high (8.41%) in Pashtoon followed by (6.93%) in Baloch, (4.16%) in Punjabi and (1.53%) in Hazara. The 11.60 % Typhoid fever was observed in the patients with low socioeconomic status, 6.67% in middle socioeconomic status and 2.76% in the patients belonged to high socioeconomic status. The electrolytes imbalance results revealed that Sodium was low in 9.82% patients and Potassium was low in 7.21% patients while the calcium was low in 4.01% Typhoid patients. The significant Typhoid fever cases were reported in July (2.97%) August (3.13%) and September (3.92%) as compared to other months of the year.

INTRODUCTION: In humans *Salmonella typhi* causes typhoid fever and systemic infections. In third world states, it is responsible for many deaths due to poor sanitation [1]. The contaminated food and water are the main sources for its spread [2]. The infection of typhoid fever is estimated 21.7 million and 0.217 million deaths/year. In the South-Eastern and South Central of Asia the Preschoolers children and teenagers experience the highest burden of the typhoid fever.

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South-East and South-Central Asia the occurrence rate of typhoid fever was more than 100/100,000 cases/year. While in other Asian countries as well as in Africa, Latin America, Oceania and Caribbean its occurrence is medium (10-100/ 100,000 cases per year) [3]. Typhoid fever is predominantly high occurring disease among the children and adolescents [4]. The frequency of typhoid fever reported in children 2-5 year of age was 573.2 in Pakistan, 430.1 in India, and 148.7/100,000 person/year in Indonesia. The degrees were considerably greater in the south Asian sites (Pakistan and India) than in the south-east and north-east Asian places [5].

In Pakistan, the occurrence of typhoid fever is high [6]. Due to some factors like missing facilities of safe drinking water, overcrowding, illiteracy, poverty,

unhygienic conditions [7]. This endemic typhoid fever is responsible for significant degree of morbidity and mortality, particularly in children due to poor facilities of diagnosis & treatment and evolving resistance of the organism to multiple antibiotics [8]. Typhoid is a serious public health problem in Quetta Baluchistan and causes significant degree of morbidity and mortality particularly in children therefore present study was conducted to check the effect of Typhoid fever on different ethnic groups of Baluchistan.

MATERIAL AND METHOD: The patients with febrile history of few days were included in this study. Approximately 3 ml blood samples of the suspected patients were taken aseptically using 25 gage butterfly especially designed for blood collection of children. The blood samples were then transferred to glass test tubes and allow to clot completely. The samples were centrifuged at 3500 rpm for 5 minutes to separate serum. The detection of antibody against the salmonella antigen was done using Typhidot® test made by USA.

RESULTS: In the present study 2352 patients were screened for typhoid fever out of that 21.04% were positive and 78.95% were negative for typhoid fever as shown in **Fig. 1**.

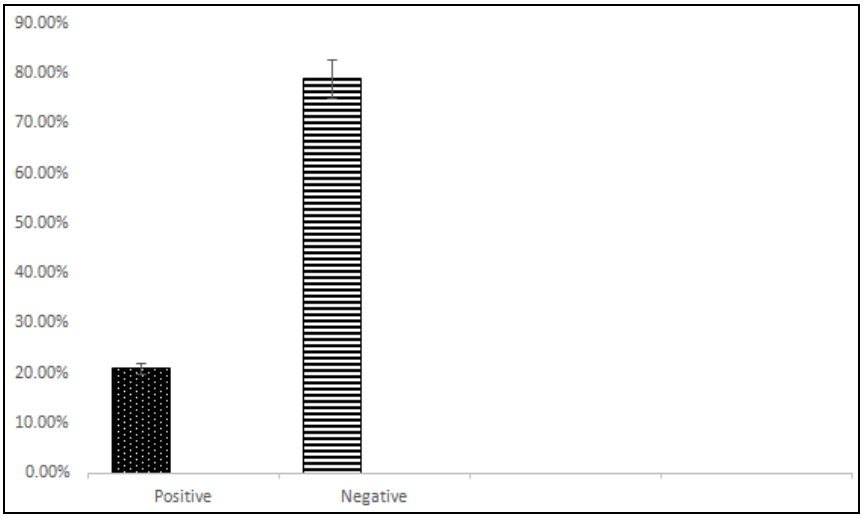

FIG. 1: TYPHOID FEVER POSITIVE AND NEGATIVE CASES

The sex wise distribution results showed male are more effected (12.71%) as compared to female (8.33%) as shown in **Fig. 2**.

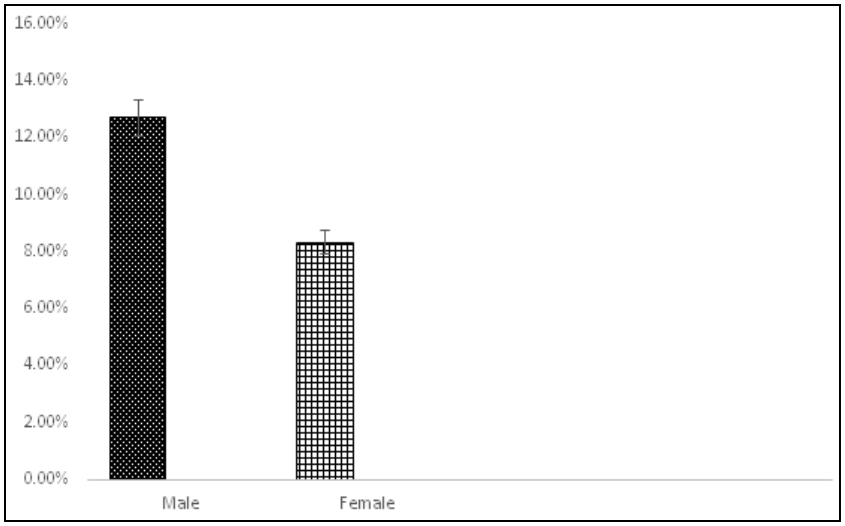

FIG. 2: GENDER WISE DISTRIBUTION OF POSITIVE PATIENTS

However, the age wise distribution was 10.45% in 6-10 years, 6.54% in 3-6 years and 4.03% in 1-3 years as shown in **Fig. 3**.

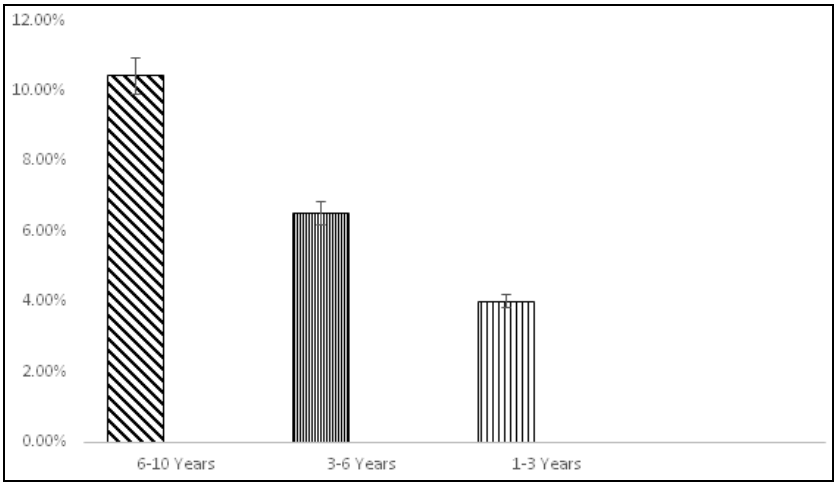

FIG. 3: AGE WISE DISTRIBUTION OF POSITIVE PATIENTS

Moreover, race wise distribution results shown that Typhoid fever cases were observed significantly high (8.41%) in Pashtoon followed by (6.93%) in Baloch, (4.16%) in Punjabi and (1.53%) in Hazara as shown in **Fig. 4**.

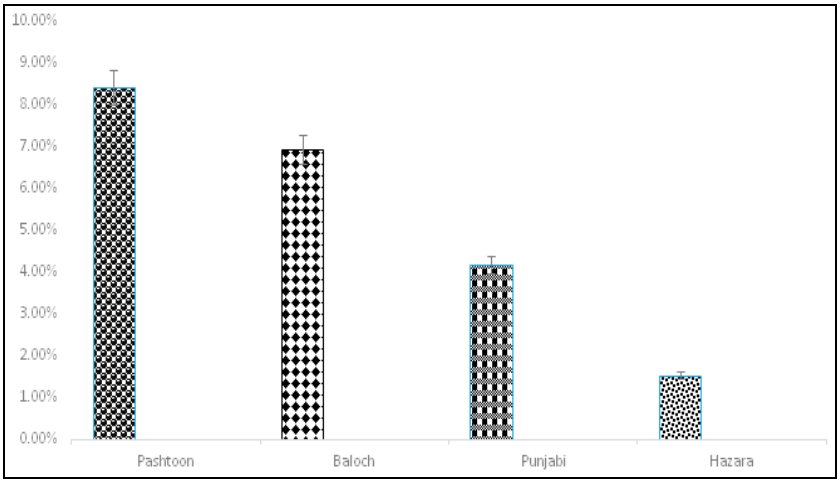

FIG. 4: RACE WISE DISTRIBUTION OF POSITIVE PATIENTS

The Typhoid fever was observed high (11.60%) in the patients with low socioeconomic status, 6.67% in middle socioeconomic status and 2.76% in the patients belonged to high socioeconomic status as shown in **Fig. 5.**

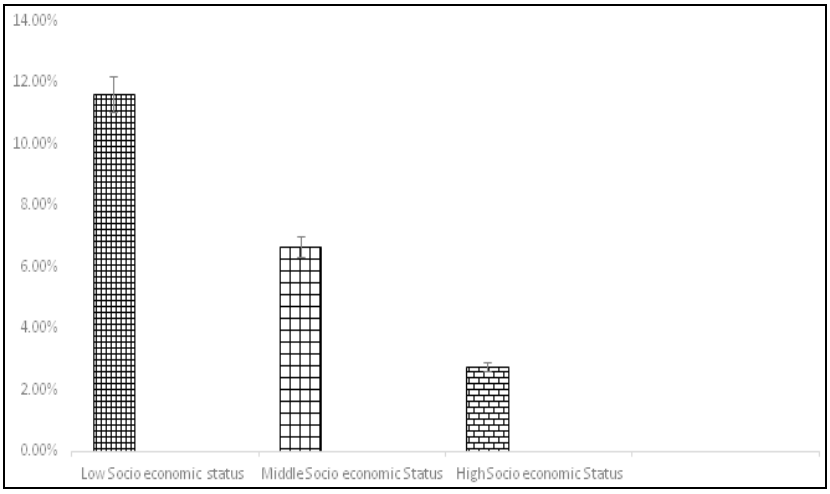

FIG. 5: DISTRIBUTION OF POSITIVE PATIENTS ON THE BASIS OF SOCIOECONOMIC STATUS

The electrolytes imbalance results revealed that Sodium was low in 9.82% patients and Potassium was low in 7.21% patients while the calcium was low in 4.01% Typhoid patients as shown in **Fig. 6**.

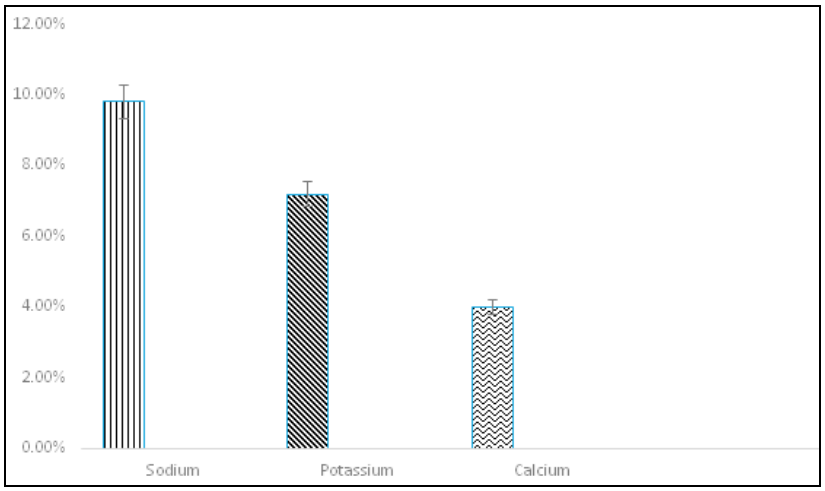

FIG. 6: ELECTROLYTES IMBALANCE

The significant Typhoid fever cases were reported in July (2.97%), August (3.13%) and September (3.92%) as compared to other months of the year as shown in **Fig. 7**.

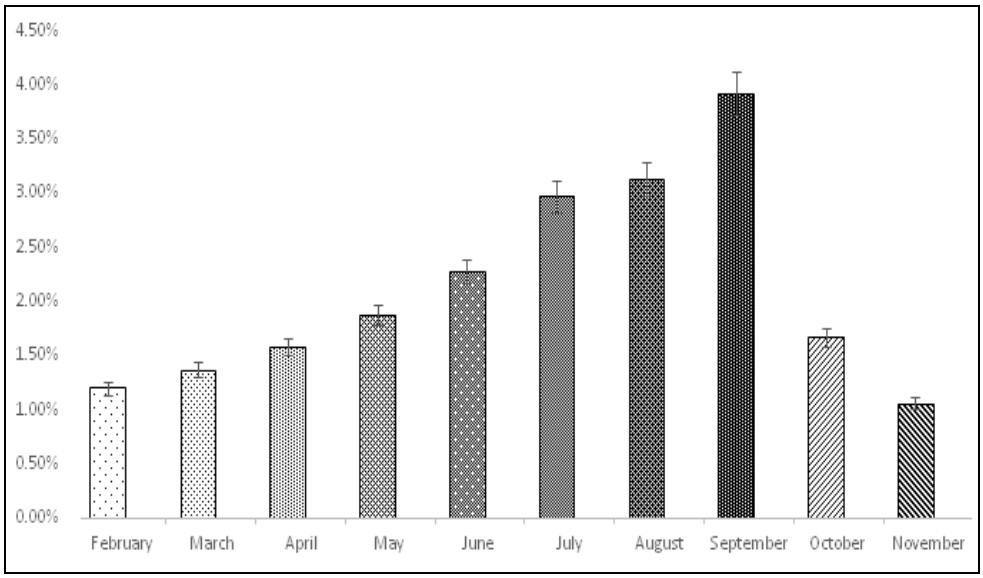

FIG. 7: SEASONAL DISTRIBUTION OF POSITIVE PATIENTS

DISCUSSION: Typhoid fever is a systemic infection caused by *Salmonella tyhi* usually through ingestion of food or water contaminated with the pathogen. The acute illness is characterized by prolonged fever, headache, nausea, loss of appetite and constipation and sometimes diarrhea.

The study was conducted from February 2016 to November 2016 at Children's Hospital Quetta. In present study total 2352 samples were collected out of that 21.04% were positive for Typhoid fever while 78.95% were negative. The sex wise distribution results showed male were more effected (12.71%) as compared to female (8.33%). However, the age wise distribution was 10.45% in 6-10 years, 6.54% in 3-6 years and 4.03% in 1-3 years. Our result was same as reported by Khan *et al.*, (2013). Race wise distribution showed that Pashtoons were more effected (8.41%) as compared to Baloch, Punjabi and Hazara. Typhoid fever was observed high in the patients with low socioeconomic status. The electrolytes imbalance results revealed that Sodium was low in 9.82% patients and Potassium was low in 7.21% patients while the calcium was low in 4.01% Typhoid patients. The significant Typhoid fever cases were reported in July (2.97%), August (3.13%) and September (3.92%) as compared to other months of

the year. Our findings are in line with findings of (Mirza *et al.*,1995)

CONCLUSION: Typhoid fever is endemic in Baluchistan, Pakistan and initiatives must be taken to improve water sanitation, hygiene level, supply of save drinking water to the community and bulk vaccination is recommended in order to eradicate the disease.

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CONFLICT OF INTEREST: There is no conflict of interest.

REFERENCES:

1. A Kashmira, Date, D Adwoa, E Bentsi, K Kimberley, Fox, A Nihal, D Eric. M Mintz, K Imran, S Sushant, B Terri, Hyde. Typhoid Fever Surveillance and Vaccine Use-South-East Asia and Western Pacific Regions. Morbidity and Mortality Weekly Report. 2014; 63(39): 855-860.
2. Tareen AM, Qasim M, Akhtar Y, Pirkani S, Kumar A, Khan K, Mengal MA, Rahman H. Prevalence of Typhoid Fever in General Population of District Quetta, Balochistan, Pakistan. Journal of Applied & Emerging Sciences. 2014; 2 (5): 70-73.
3. Crump JA, Luby SP, & Mintz ED. The global burden of typhoid fever. Bull WHO. 2004; 82(5): 346-53.
4. Khan MN, Shafee M, Hussain K, Samad A, Arif Awan M, Manan A, & Wadood A. Typhoid fever in pediatric patients in Quetta, Balochistan, Pakistan. Pakistan Journal of Medical Sciences. 2013; 29(4): 929-932.
5. Ochiai RL, Acosta CJ, Danovaro, Holliday MC, Baiqing D, Bhattacharya SK, & Agtini MD. A study of typhoid fever in five Asian countries: disease burden and implications for control. Bulletin of the World Health Organization. 2008; 86(4): 260-8.
6. Ahmad KA, Khan LH, Roshan B, & Bhutta ZA. A 12-year clinical experience with pediatric salmonellosis from an endemic population in Karachi. The International Society for Infectious Diseases Meeting, Argentina. 2000;
7. Sultan B Arif, Fasih N, Qaiser S, Khan E, Zafar A & Irfan S. Mixed salmonella infection case series in Pakistan. Journal of Pakistan Medical Association. 2013; 63(4): 524-526.
8. Fazil M, Khan FR. Differences in laboratory manifestations of enteric fever in children on the basis of age. Gomal Journal of Medical Sciences. 2012; 10(1): 90-92.

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