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Mini-Research Article

**TYPHOID CONJUGATED VACCINE: PAKISTAN ROLLS OUT
NEW TYPHOID VACCINE TO FIGHT RESISTANT STRAIN**

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ABSTRACT

Typhoid is a contamination of microorganism that could result in
excessive fever, diarrhea and vomiting. Could be fatal. This is
Resulting from the Salmonella Typhi microorganism. Health officers in
Pakistan have showed a persevering with outbreak of notably drug-
resistant (XDR) typhoid fever that began out in Hyderabad.

Salmonella Typhi stress does not reply to the bulk of antibiotics used to
deal with typhoid fever. The outbreak unfold to provinces
Throughout the united states of America, with numerous deaths
recorded. Traveling to Pakistan associated XDR typhoid has been
registered with inside the United States, Canada, the United
Kingdom, Denmark and Australia. Pakistan nowadays have become the
primary united states of America with inside the international to include
the Typhoid Conjugate Vaccine (TCV) advocated with the aid of using
the World Health Organization (WHO) into its recurring
immunization program. It is the primary typhoid vaccine that may be
given to kids as younger as 6 months and affords safety towards
typhoid with inside the longer term. Because the microorganism that
motive typhoid fever are transmitted with the aid of using inflamed
meals and water, the hazard of contamination may be minimized in
numerous ways: observe guidelines for healthful meals and water.
Too regularly wash your hands, especially earlier than eating.

Key words: Typhoid Conjugate Vaccine, microorganism, drug-resistan
typhoid , fever

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processing, critical review. 2 & 4 Conception & study design, data
collection & processing. 3-4 Data analysis and/or interpretation. 3
Drafting of manuscript. 4 Drafting of manuscript, critical review.

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INTRODUCTION

Typhoid is a particularly contagious ailment that spreads quicker and less complicated whilst human beings stay in crowded groups with insufficient water and sanitation facilities. Typhoid, an extreme ailment resulting from *Salmonella Typhi*, is transmitted via way of means of infected meals and water, and influences youngsters and low profits groups in Asia. The Global Burden of Disease studies reviews that almost eleven million instances of typhoid and extra than 116 000 deaths global had been recorded in 2017. [1]. XDR *Typhoid* Is a drug resistant *Salmonella typhi* (XDR *S. typhi*) has come to be one in all Pakistan's. Some pressing fitness issues. *S. Bacteria* with typhi are called XDR *S. Typhi* display resistance to fluoroquinolones, chloramphenicol, ampicillin, trimethoprim-sulfamethoxazole, and cephalosporins of the 1/3 generation [2] Typhoid *Conjugated Vaccine* is a polysaccharide antigen this is fused to a molecule of the carrier. The vaccine has long lasting immunity, wishes handiest one dose and may be administered to youngsters as younger as 6 months through ordinary early life immunization program. In youngsters over 2 years old, extra typhoid vaccines are recommended.[3].

Pakistan has emerge as the primary USA within side the international to introduce TCV thru a marketing campaign mode in Sindh into its recurring immunization program .[4] Typhoid conjugate vaccine is safe, powerful and may offer safety for toddlers and youngsters beneath Neath the age of , in contrast to typhoid vaccines formerly available. TCV affords longer lasting safety in comparison to in advance typhoid vaccines, calls for fewer doses and is appropriate for youngsters beneath neath years of age. These blessings offer higher safety for younger youngsters thru recurring toddler immunization program. TCV with the aid of using recurring immunization could lessen the occurrence of disorder and probably lessen the want for antibiotics priorities of efforts to scale back the improvement and unfold of drug resistant typhoid .WHO has highlighted TCV as a essential device for similarly slowing the improvement of drug resistant typhoid traces and in the long run saving lives. The typhoid conjugate vaccine will now no longer handiest store lives however will even assist fight antimicrobial drug resistance [5].

Azithromycin is the most effective dependable and cheap oral antibiotic left in Pakistan for treating XDR typhoid. The WHO says that sufferers with suspected typhoid fever have to be microbiologically examined to affirm *Salmonella typhi* and decide antimicrobial susceptibility, and recommends multiplied tracking of typhoid fever to screen new and rising resistance. In reaction to showed typhoid outbreaks the corporation additionally recommends vaccination. [6]. Health care practitioners have to Collect stools and blood cultures from suspected typhoid fever sufferers and request antimicrobial susceptibility exams on isolates, be conscious that azithromycin and carbapenems stay liable to the Pakistan outbreak strain, Azithromycin is powerful in treating straight forward typhoid fever (diarrhea or bacteremia without secondary complications) and have to be utilized in sufferers with suspected straight forward typhoid fever who've traveled to Pakistan.

When there are outcomes of lifestyle and sensitivity, modify the remedy accordingly, Carbapenems have to be utilized in sufferers suspected of getting excessive or complex typhoid fever touring to Pakistan. For example, excessive or complex typhoid fever can also additionally consist of gastrointestinal complications (which include typhoid related intestinal perforation, peritonitis, bowel hemorrhage, hepatitis), neurological complications (which include typhoid encephalopathy, inclusive of altered consciousness, delirium, confusion), or sepsis or surprise bacteremia. When there are outcomes from lifestyle and sensitivity, modify the remedy accordingly. Consider getting a session with those sufferers on infectious diseases. Be aware about feasible relapses, regularly 1-three weeks after scientific improvement. Be conscious that the majority (ninety according to cent) of *Salmonella Typhi* isolates in sufferers from South Asia have reduced susceptibility or resistance to fluoroquinolones, inclusive of ciprofloxacin; therefore, fluoroquinolones have to now no longer be used as an empirical remedy for suspected typhoid fever in sufferers touring to this

area, Report all showed instances of typhoid fever to applicable neighborhood or kingdom fitness Departments. Clinical laboratories have to additionally post all Salmonella Typhi isolates for submission to the Centers for Disease Control and prevention of their kingdom or neighborhood public fitness laboratory. [7] To tackle drug-resistant typhoid we've demonstrated prevention tools. By protective youngsters from typhoid we will save you contamination and therefore lessen the want for antibiotics. If typhoid cannot unfold from man or woman to man or woman it cannot evolve. Increasing resistance to typhoid tablets makes preventive measures, which include vaccines and advanced water, sanitation and hygiene, greater urgent. [8-9]

RESEARCH METHODOLOGY

The objective of our study was to evaluate the People's knowledge about typhoid disease and its cause , treatment and prevention from typhoid and XDR TYPHOID that is drug resistant typhoid and its occurrence in Pakistan and its causes , prevention from XDR typhoid and new typhoid vaccine that is typhoid conjugated vaccine to fight resistant strain among the citizen of Karachi. This prospective study was conducted to achieve above mentioned aim among different students and professionals in KARACHI.

A questionnaire was designed which include knowledge and awareness about most typhoid infection .Questionnaire based on respective guidelines and knowledge to achieve raw facts and figure. The questionnaire consists of understandable effective information for the compliance of students. The study was started from 20 Feb 2020 to 05 March 2020

The area which kept under consideration was Karachi, PAKISTAN. The study was conducted to achieve desired goals survey from different educational field's students and professionals. The sample size was (n=200) after the collection of data. We evaluate statistically its % by different method.

RESULTS AND DISCUSSION

Table 1.Treatment options for different resistance classes of S. Typhi.

Antibiotic	Route of Administration	MDR	PAKISTAN XDR
Chloramphenicol	Oral ,intravenous	X	X
Co-trim oxazole	Oral ,intravenous	X	X
Ampicillin	Oral, intramuscular, intravenous	X	X
Ciprofloxacin	Oral, intravenous		X
Ceftriaxone	Intramuscular, intravenous		X
Azithromycin	Oral		
Meropenem	Intravenous		
Tigecycline	Intravenous		

Abbreviations: MDR, multiple drug resistance; XDR, extensively drug resistant

Table 2. Demographic factor and percentages of responses

S.NO	Characteristics	Percentage
1	Gender	
	Male	23.5%
	Female	76.5%
2	Age	
	Less than 15	11.8%
	15-30	82.4%
	31-45	4.9%
	46-60	0.9%
3	Education	
	Undergraduate	76.5%
	Graduate	4.5%
	Professional	11.8%
	Intermediate	1.3%
	Matriculation	5.9%

As per shown in table number 2 i.e. demographic factor we can come up with age between 15-30 undergraduate are well known about typhoid , drug resistant typhoid , and typhoid conjugated vaccine. After our survey research we conclude that people have knowledge about the more drug resistant typhoid and its prevention from typhoid conjugated vaccine and by preventing from contaminated food and water and by proper hand washing. More over our cross sectional study shows that people are more interested in such awareness program related to health. People's knowledge about typhoid disease and its cause , treatment and prevention from typhoid was carefully evaluated in term of knowledge statement from which those people who said yes and highest percentage obtained from the statement " do you agreed typhoid is a potentially life threatening systemic bacterial disease " That is 68.8 % followed by the statement ." do you think typhoid is highly contagious disease that spread more rapidly and easily " That is 50% followed by the statement. " do you agreed non treated typhoid can leads to other fatal disease " that is 75% followed by the statement. "What do you know about typhoid is caused by salmonella typhi bacteria "68.8% followed by the statement.

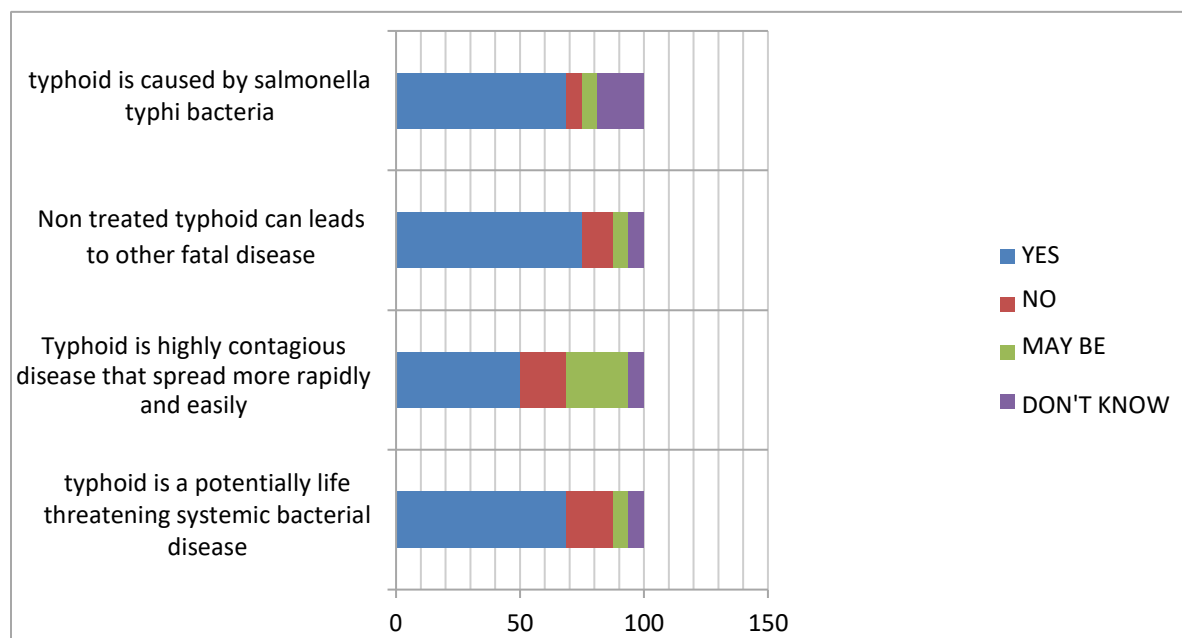


Figure 1: People's knowledge about xdr typhoid

People's knowledge about XDR TYPHOID that is drug resistant typhoid and its occurrence in Pakistan and its causes , prevention from XDR typhoid was carefully evaluated in term of knowledge statement from which those people who said yes and highest percentage obtained from the statement “ drug resistant typhoid don't respond to most antibiotics” that is 62.5% followed by the statement “Are you agree , Who says that the risk of acquiring XDR typhoid in PAKISTAN is high because of insufficient access to clean water and poor sanitation and hygiene “ that is 62.5 % followed by the statement . “Do you think resistant strain typhoid is curable : that is 62.5% followed by the statement “ do you think frequently use of antibiotics can leads to develop typhoid resistant “ That is 62.5% followed by the statement “ what do you think resistant strain typhoid can leads to death “ that is 56.3 % followed by the statement shown in figure 2

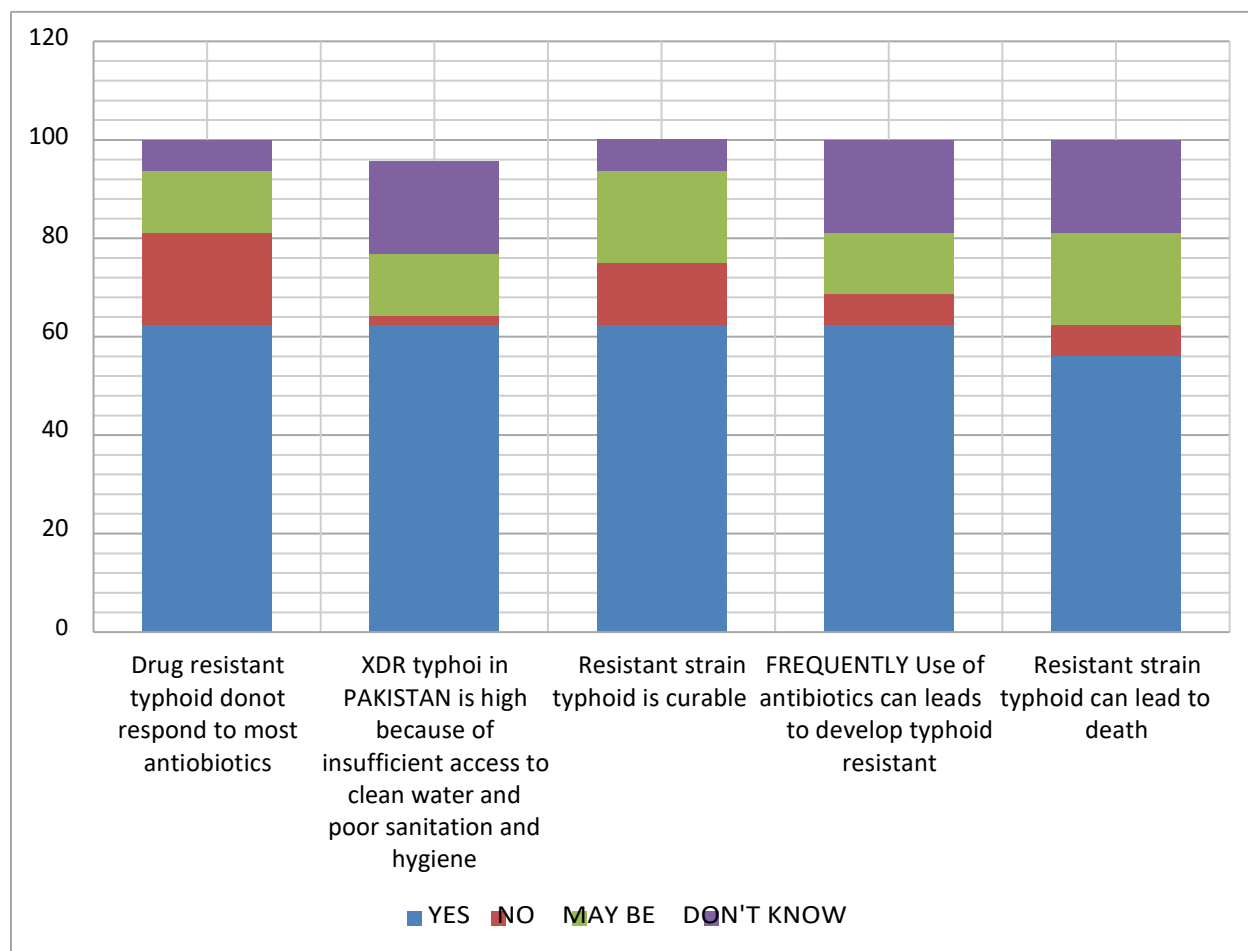


Figure 2: People's knowledge about new typhoid vaccine

People's knowledge about new typhoid vaccine that is typhoid conjugated vaccine to fight resistant strain was carefully evaluated in term of knowledge statement from which those people who said yes and highest percentage obtained from the statement " Do you think TVC one dose is expected to provide long lasting immunity in adults , children and infants" That is 56.3 % followed by the statement "do you agreed typhoid conjugated vaccine has heightened efficacy as compared to other typhoid vaccine "that is 50% followed by the statement shown in table number

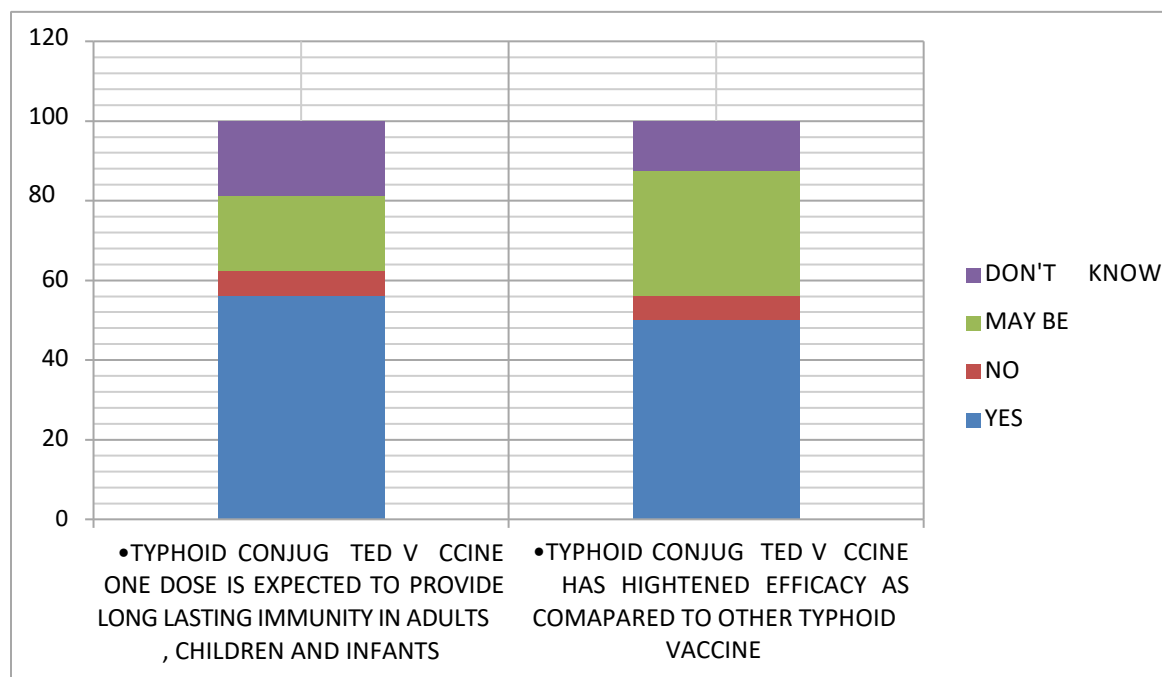
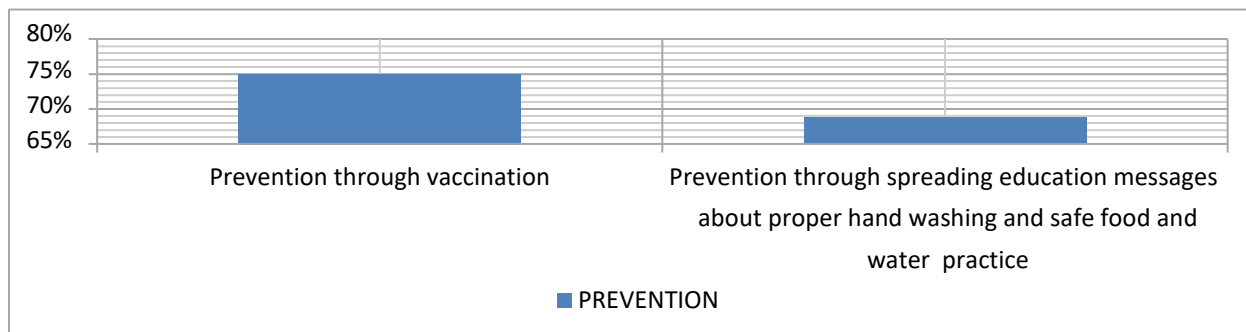


Figure 3: People's knowledge about how to prevent form XDR typhoid

People's knowledge about how to prevent form XDR typhoid that is drug resistant typhoid was carefully evaluated in term of knowledge statement from which those people who said yes and highest percentage obtained from the statement " are you agree prevention through vaccination is one of the most effective intervention to reduced typhoid infection" that is 75% followed by the statement " are you agree prevention through spreading education messages about proper hand washing and safe food and water practice can reduce the risk of typhoid infection " that is 68.8% followed by the statement results are expressed in figure:4



Graph 4: Prevention through vaccination

CONCLUSION

The objective of our study was to evaluate the People's knowledge about typhoid disease and its cause, treatment and prevention from typhoid and XDR TYPHOID that is drug resistant typhoid and its occurrence in Pakistan, From the above study we concluded that people are somehow aware about typhoid, drug resistance typhoid and its causes, treatment and prevention and typhoid conjugated vaccine. People showed there interest in this type health awareness surveys in Pakistan

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