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Original Article

Evaluation of Adherence to Standard Treatment Guidelines in Typhoid Fever

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Abstract

Background: To analyze adherence to treatment guidelines in typhoid fever.

Methods: In this cross sectional study sixty prescriptions from four cities (thirty from public and thirty from private sector) were enrolled. WHO prescribing indicator form was used as a study tool . Probability sampling was employed by using random sampling technique on prescriptions as data was available in the form of prescriptions. Focused group discussions were generated to modify and finalize the tool. Pilot testing was conducted on 10% of the sample size to validate the reliability of tool. The total sample size was 240. Thirty prescriptions were collected from each health care facility according to the guidelines of WHO.

Results: Less than 55% of prescriptions revealed proper adherence to treatment. Irrational prescribing included wrong drug, wrong dose, or drug given for short duration. Amongst private sector better adherence to standard treatment guidelines (86%) was seen .

Conclusion: It is required to design standard treatment guidelines for typhoid fever

Key Words: Typhoid Fever, Treatment Guidelines

Introduction

Typhoid fever(enteric fever) is an acute infectious disease caused by Salmonella typhi. The symptoms include high grade fever, constipation followed by diarrhea, loss of appetite and rose spots. This disease is contacted through contaminated food and water. According to WHO, approximately 500,000 deaths are reported each year globally. [1] Typhoid fever is the sixth most common cause of death in Pakistan and its prevalence in our country is estimated to be 412 cases per 100,000 population per year.[2,3]

In developed countries prevalence of typhoid fever is recorded to be 5 cases per 1,000,000 people every year which shows that it is less common in developed countries due to improved sanitation, hygienic conditions and vaccination. People traveling to less developed countries are at a high risk to acquire the disease.[4,5]

In our set up emergence of widespread resistance to antibiotics active against salmonella is recorded. Comparison of multidrug resistant strains in five countries including China, Vietnam, Pakistan, India and Indonesia showed highest incidence of resistance in Pakistan(60%), while sensitivity and to chloremphenicol ,ampicillin, Co-trimoxazole quinolones is recorded in China and Indonesia. In developed countries Salmonella typhi is still sensitive to antibiotics including ampicillin, amoxicillin and ciprofloxacin.[7,8]

MDR Salmonella typhi, with a high mortality rate, is the most important risk factor for typhoid ileal perforation in our country . Due to poverty and illiteracy people prefer self medication or visit quacks and present late to the qualified doctor. Evaluation of drug resistance and major factors identified by WHO in initiating and promoting antimicrobial resistance include, non availability of standard treatment guidelines, unnecessary use of antibiotics, misuse of antibiotics, over-the-counter availability of antibiotics, patients' failure to follow the prescribed course of treatment; and the use of antibiotics in animal feeds as growth hormones. The consequences of these factors are antimicrobial resistance, adverse drug reactions and waste of resources [9,10].

Patients and Methods

This comparative cross sectional study was designed to assess the prescribing practices and adherence with Standard Treatment Guidelines in typhoid fever among public and private tertiary health care facilities in Islamabad, Taxila, Rawalpindi and Narowal. WHO prescribing indicator form was used as a study tool . [11] The tool comprised of the following factors i.e., number of drugs given per prescription, number of generics given per given per prescription. Another tool

was designed which was used for the assessment of the adherence of prescribers to treatment guidelines.

Four public and four private health care facilities were selected from respective cities. Probability sampling was employed by using random sampling technique on prescriptions as data was available in the form of prescriptions. Pre validated tool of WHO was used. Focused group discussions were also generated to modify and finalize the tool. Pilot testing was conducted on 10% of the sample size to validate the reliability of tool. The total sample size was 240. A total of 8 health care facilities were targeted in both public and private sectors. Thirty prescriptions were collected from each health care facility according to the guidelines of WHO.

Results

Out of 240 prescriptions, correct drug and dose was given in 47% and 73.3% , respectively. Correct frequency was given in 72.9% and correct duration was given in 59.5% (Table 1). In 52.5% prescriptions drugs were prescribed rationally. Rational prescribing in Islamabad health care facilities was 56%, Rawalpindi 45% , Taxila 43% and in Narowal 71.5% (Table2). Mann Whitney test was used to compare adherence of prescribers to STGs in treatment of typhoid among public and private sector. Significant difference was observed in comparison of adherence of prescribers to STGs in two sectors. Private sector was relatively more adherent to STGs (Table 3)

Kruskalwalis test was used to compare adherence of prescribers to STGs in treatment of typhoid among different health care facilities in different cities. A significant difference $p \leq 0.005$ was observed in comparison of adherence of prescribers to STGs in treatment of typhoid among different health care facilities in different cities. Amongst cities Narowal was relatively more adhering to STG's than other cities (Table 4)

Table 3 : **Comparison of adherence to STG's in treatment of typhoid in different sectors.**

Variables	Adherence to STGs			
	N	U	Mean rank	p-value
Sector	Public=120 Private=120	5667. 0	Pub=133.2 Priv=107.7	0.004

Mann Whitney test $p \leq 0.005$

Discussion

Irrational use of antimicrobials not only results in treatment failure, increases risk of complications , depletes finances ,increases economic burden but also increases the development of drug resistant strains. Lack of adherence of prescribers to standard treatment guidelines is one of the major factors leading to irrational drug use. All developed countries and most of the developing countries have their own STGs for various diseases. Strict implementation of treatment guidelines are significantly effective in improving the clinical practice.[12-15]

Table 1: Adherence of prescribers to STG's for treatment of typhoid. (n=2240)

Indicators	Adherence of prescribers to STGs for typhoid treatment in different cities N= 240									
	Islamabad		Rawalpindi		Taxila		Narowal		Composite	
	Public n= 30 F (%)	Private n=30 F (%)	Public n=30 F (%)	Private n= 30 F (%)	Public n=30 F (%)	Private n=30 F (%)	Public n= 30 F (%)	Private n=30 F (%)	Public n=120 F= (%)	Private n=120 F= (%)
Correct drug	15 (50%)	30 (100%)	17 (57%)	20 (67%)	19 (63%)	18 (60%)	27 (90%)	24 (80%)	65(%)73	92(76.5%)
Correct dose	9 (30%)	26 (86%)	13 (43%)	19 (63%)	21 (70%)	20 (67%)	27 (90%)	22 (73.3%)	70 (58.3%)	87(72.5%)
Correct frequency	9 (30%)	27(90%)	18 (60%)	23 (76.6%)	23 76.6%)	20 (67%)	23 80%)(	25(76%)	73 60.8%)	95 %79.6
Correct duration	8(27%)	27 (90%)	18 (60%)	21 (70%)	17 (56.6%)	10 (33.3%)	26 (86%)	30 (100%)	69 (57.5%)	%.70.3() 8

Table 2: Rational prescribing practices

Islamabad		Rawalpindi		Taxila		Narowal		copos composite
Public n=30 F(%)	Private n=30 F(%)	Public n=30 F(%)	Private n=30 F(%)	Public n=30 F(%)	Private n=30 F(%)	Public n=30 F(%)	Private n=30 F(%)	126
8 26%	26 %86	10 (33%)	17 (56.6%)	(%53)16	10 (33%)(	25 (76%)	20 (67%)	126(%52.512222

Table 4: Adherence to STG's in treatment of typhoid among different cities

Variables	Adherence to STG's			
	N	H	Mean Rank	p value
City	Islamabad=60	25.236	127.5	0.005
	Rawalpindi=60		142.6	
	Taxila=60		103.5	
	Narowal=60		88.7	

Kruskalwalis test $p \leq 0.005$

In the present study adherence of prescribers to STG's in treatment of typhoid was compared among different levels of health care facilities. The result of present study highlighted that most prescribing practices were not in accordance to STG. Assessment of irrational prescribing practices in both private and government sectors highlights the importance of an effective training programme to eliminate the inappropriate drug use in Pakistan.

According to WHO majority of the medicines have been prescribed incorrectly. There is no facility in Pakistan which provides up to date impartial information of the presently used drugs .Inspection of prescribing practices conducted in Pakistan showed irrational practice. Poor prescribing is associated with the lack of medical knowledge and the lack of useful prescribing information . Lack of clinical education about writing a prescription is increasing in doctors which contribute to irrational drug use in Pakistan . Thus overuse or misuse of medicines results in depletion of finances and extensive health hazards.[12] A comparison of the treatment given to hospitalized patients in Karachi concluded the use of inappropriate combination regimens due to lack of clinical guidelines. Lack of adherence of prescribers to standard treatment guidelines is one of the major factors leading to irrational drug use. Antibiotic given in wrong dose or given for incorrect duration leads to development of MDR strains.[15]Misuse of antibiotics requires the implementation of educational interventional programmes as suggested in different studies. [16]

Conclusion

Problem of irrational prescribing can be overcome by educating the healthcare practitioners about the benefits of rational prescribing.

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