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Research Article

Antibiotic prescribing pattern in elderly acute diarrhoeal patients

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Abstract

Objective: The study was aimed to analyze the Antibiotic prescribing pattern in elderly acute diarrhoeal patients.

Material & Methods: The study was conducted in outpatients of various public facilities (S.N. Medical College, Agra, CHC and PHC) and private facilities (private hospital/clinics) within 5 Km range from S.N. Medical College, Agra, from March' 2011 to Aug' 2011. A total of 182 prescriptions of outpatients >60years presenting with acute diarrhoea were reviewed. A specially designed data entry form was used to collect data. Antibiotic use was measured in the terms of Percent of patients receiving antibiotics and Prescribing patterns of various antibiotics were analyzed.

Results: Total 182 Number (97 from Public facilities + 85 from Private facilities) of Prescriptions collected from both type of facilities out of which 127 Number (53 from Public facilities + 74 from Private facilities) Of Prescriptions received at least one antibiotic. Overall from both public and private facilities 69.78% (127 out of total 182) of the patients with acute diarrhoea were prescribed at least one antibiotic. 54.63% (53 out of 97) of the patients at public facilities and 87.05% (74 out of 85) at private facilities were prescribed at least one antibiotic. In public sector facilities, Fluroquinolones 23(23.71%) were the most prescribed antibiotic class, followed by the FDCs 21 (21.64%), Macrolides 08(8.24%), Tetracyclines 01(1.03%), while in private facilities FDCs 59(69.41%) were the most prescribed antibiotic class, followed by the Fluroquinolones 06(7.05%), Macrolides 04(4.7%), Cephalosporins 03(3.52%), Tetracyclines 01(1.05%) and Penicillin's 01(1.05%).

Conclusion: From our study it was observed that antibiotics are being extensively prescribed for elderly acute diarrhoeal patients. There was high use of newer Antibiotics. Further studies are needed to rationalize such high uses of antibiotics in elderly acute diarrhoeal patients.

Keywords: Antibiotic, prescribing pattern, Elderly, acute diarrhea

1. Introduction

Geriatrics is an upcoming field in India. In the year 2000, there were an estimated 600 million people aged 60 years and above in the world. By 2025, this would double to about 1.2 billion people and by 2050 there will be 2 billion, with 80% of them living in developing countries.[1] Diarrhoeal diseases account for about 8.2 per cent of the total burden of disease in India, contributing about 22 million of Disability Adjusted Life Years (DALYs) lost, the highest among communicable diseases.[2] Diarrhea is an important cause of morbidity and mortality in elderly. Routinely Antibiotics are not needed in most cases of acute diarrhea. WHO guidelines for the treatment of acute diarrhea clearly mention that antibiotics should not be used routinely.[3]

Diarrhoea is one condition where antibacterial are often over-prescribed. Some studies reported high levels of prescription of antibiotics and other drugs in acute diarrhoea.[4] To date, most studies of acute diarrhea have focused on children[5-6]; Studies focusing on Antibiotic prescribing pattern in elderly acute diarrhoeal patients are lacking so it is necessary to analyze the use of antibiotics in elderly diarrhoea.Therefore, the present study was designed to study the Antibiotic prescribing pattern in elderly acute diarrhoeal patients.

2 Material and Methods

The study was a cross-sectional study carried out over a 6 months period (march' 2011 to Aug' 2011) in outpatients of various public facilities (S.N. Medical College, Agra, CHC and PHC) and private facilities (private hospital/clinics) within 5Km range from S.N. Medical College, Agra. A total of 182 prescriptions of Elderly patients with age 60 years or above presenting with acute diarrhea were analyzed on the basis of inclusion and exclusion criteria. The inclusion criteria were: acute diarrheal patients (passage of >3 loose or liquid stools per day of less than 1 week duration[7]) with age 60 years or above and who gave verbal consent. Exclusion criteria were: age<60 years, not willing to participate in study. Participants were informed about our study and they are voluntarily participated. Prescriptions of outpatients were reviewed for the prescribing pattern of Antibiotic. A specially designed data entry form was used to collect data regarding Name, Age, sex of patients, Type of facilities to which patient visited, antibiotic name, Class type, dose and duration of the antibiotic prescribed.

2.1 Statistical Methods

Antibiotic use was measured in the terms of Percent of patients receiving antibiotics which is Calculated by dividing the number of patients receiving at least one antibiotic by the total number of patient surveyed, multiplied by 100. Prescribing patterns of various antibiotics were analyzed.

3. Results

Table 1: Percentage of Antibiotic prescribed

Type of facilities	Total Number of Prescriptions collected from facilities	Number & % of Prescriptions receiving at least one antibiotic
Public Hospitals/clinics	97	53 (54.63%)
Private Hospitals/clinics	85	74 (87.05%)
Total	182	127 (69.78%)

3.1 Percentage of antibiotic prescribed

Total 182 Number (97 from Public facilities + 85 from Private facilities) of Prescriptions collected from both type of facilities out of which 127 Number (53 from Public facilities + 74 from Private facilities) Of Prescriptions received at least one antibiotic. Overall from both public and private facilities 69.78% (127 out of 182) of the patients with acute diarrhoea were prescribed at least one antibiotic. 54.63% (53 out of 97) of the patients at public facilities and 87.05% (74 out of 85) at private facilities were prescribed at least one antibiotic.

Table 2: Prescribing Frequencies of Antibiotic

Antibiotic Class		Number & % of prescribed Antibiotic At Public Facilities out of total Number (97) of Prescriptions collected from facilities	Number & % of prescribed Antibiotic At Private Facilities out of total Number (85) of Prescriptions collected from facilities
FDCs	Ofloxacin+Ornidazole	6 (6.18%)	29 (34.11%)
	Ciprofloxacin+Tinidazole	3 (3.09%)	14 (16.47%)
	Norfloxacin+Tinidazole	8 (8.24%)	9 (10.58%)
	Levofloxacin+Ornidazole	4 (4.12%)	7 (8.23%)
	Total	21 (21.64%)	59 (69.41%)
Fluoroquinolones	Norfloxacin	10 (10.3%)	2 (2.35%)
	Ofloxacin	8 (8.24%)	3 (3.52%)
	Levofloxacin	5 (5.15%)	1 (1.05%)
	Total	23 (23.71%)	06 (7.05%)
Macrolides	Azithromycin	7 (7.21%)	1 (1.05%)
	Roxithromycin	1 (1.03%)	3 (3.52%)
	Total	08 (8.24%)	04 (4.7%)
Cephalosporins	Cefixime	0 (0%)	2 (2.35%)
	Cephalexin	0 (0%)	1 (1.05%)
	Total	0 (0%)	03 (3.52%)
Tetracycline	Doxicycline	1 (1.03%)	1 (1.05%)
	Total	01 (1.03%)	01 (1.05%)
Penicillin's	Amoxicillin+Clavulinic acid	0 (0%)	1 (1.05%)
	Total	0 (0%)	01 (1.05%)

3.2 Prescribing frequencies of antibiotic class

In public sector facilities, Fluroquinolones 23(23.71%) were the most prescribed antibiotic class, followed by the FDCs 21 (21.64%), Macrolides 08(8.24%), Tetracyclines 01(1.03%), while in private facilities FDCs 59(69.41%) were the most prescribed antibiotic class, followed by the Fluroquinolones 06(7.05%), Macrolides 04(4.7%), Cephalosporins 03(3.52%), Tetracyclines 01(1.05%) and Penicillin's 01(1.05%). In public sector facilities cephalosporins and penicillins were not prescribed while in private sector facilities, all the groups of antibiotics were used.

3.3 Prescribing pattern of antibiotic class members

In both sectors, newer and broad spectrum antibiotics were often used more than the older ones. At public facilities, the most commonly prescribed Fluoroquinolone was Norfloxacin, followed by Ofloxacin and Levofloxacin. At private clinics, it was Ofloxacin followed by Norfloxacin and Levofloxacin. For Macrolides, Roxithromycin and Azithromycin were prescribed in both sectors. At public facilities, Azithromycin were more prescribed than Roxithromycin whereas in private sector facilities, Roxithromycin were more prescribed than Azithromycin. Cefixime were the most commonly prescribed Cephalosporins in private sector facilities, while in public sector facilities Cephalosporins were not prescribed. In private sector facilities, only the extended spectrum Penicillins were prescribed, viz. Amoxicillin+Clavulanic acid. Tetracycline's, were less used by both the sectors.

4. Discussion

While there are many causes for diarrhoea, infective and non-infective, the fact remains that most of them are self-limiting, require only adequate rehydration and antibiotics are not required in most cases. Most diarrhoeal episodes are self-limiting.[8] In our study a very high prescription of antibiotics in elderly acute diarrhoeal patients was observed both in public and private sector which is similar to finding of a previous study in children acute diarrhoea, in which high levels of prescription of antibiotics/antibiotics and other drugs in Children acute diarrhoea.[4] High difference was observed in the antibiotic prescription rates between different practice settings. Prescription rate was found higher in private settings compared to public setting which may be due to profit-motive in private health facilities, these finding are contrast to previous study observations in which prescription rate was found higher in public settings.[9] A total of 21 and 59 FDCs were prescribed in the public setting and in the private settings respectively, which may be due to profit-motive or pressure from pharmaceutical companies. Pharmaceutical companies pursue prescribers via medical representatives (MRs) for prescribing new FDCs of antibiotics.[10-11] Use of such combinations are irrational, adds to the cost of therapy, results in adverse effects and encourages resistance. Fluroquinolones were highly prescribed by both types of facilities similar finding also observed in a previous study of antibiotic use in the public and private healthcare facilities and private retail pharmacies in New Delhi, India showed that the betalactam antibiotics and fluoroquinolones were the most commonly prescribed antibiotics. Ofloxacin, ciprofloxacin, levofloxacin, and norfloxacin were the most commonly prescribed fluoroquinolones.[12]

High uses of antibiotics associated with increased risk of antibiotic resistance to community pathogens. There is evidence at the national level as well as some evidence at the patient level from Europe that the incidence of resistance is positively correlated with antibiotic use in the outpatient.[13-14] In our study current trend of high use of broad spectrum and newer antibiotics was observed, similar trend also found in other studies, Even for trivial infections of viral etiology, an increasing trend is noticed for use of combinations, broad spectrum and newer generation antibiotics.[15] The high and increasing use of the newer and broad spectrum antibiotics in the community is worrying, as such antibiotics may often not be needed and their use will lead to resistance in the treatment of serious infections. In a country like India where incidence and mortality due to bacterial infections is very high, spread of antibiotic resistance against these precious antibiotics could bear serious consequences.

5. Conclusion

From our study it was observed that antibiotics are being extensively prescribed for elderly acute diarrhoeal patients. There was high use of newer Antibiotics. Further studies are needed to rationalize such high uses of antibiotics in elderly acute diarrhoeal patients.

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