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A study of prescribing pattern of antibiotics and other drugs in surgical wards of a teaching hospital in southeast India

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Abstract
Introduction: Appropriate use of drugs is an essential element in achieving quality of health and medical care for patients and the community as a whole. The irrational use of medicines is a serious problem worldwide. WHO and the International Network of Rational Use of Drugs (INRUD) have developed a set of drug prescribing indicators to be used as measures of prescribing performance in primary care.
Materials and methods: One hundred and fifty prescriptions from a tertiary care teaching hospital were collected randomly and were analyzed and the parameters included the INRUD indicators and rationality of prescriptions. Vital, essential and non-essential (VEN) method was also applied to ascertain the quality of drug procurement. The information was compiled, scored and analyzed using WHO guidelines.
Results and discussion: Antibiotics were very commonly prescribed in post-operative patients. Sometimes there was no viable justification of prescribing the antibiotics. Average number of drugs prescribed per prescription was 4.8±1.5. The antibiotics per prescription were 2.6±0.7 and injections per prescription were 2.4±1.9.
Conclusion: The essential list of drugs was not followed by doctors while prescribing these drugs. Usually costly drugs were prescribed, and rationality was not maintained. The surgeons need to be educated regarding this and WHO guidelines should be followed.

Keywords: essential drugs, WHO, rational use of drugs

Introduction

Indian markets are flooded with over 70,000 formulations, compared to roughly 350 preparations listed on the WHO Essential Drugs List. There are thousands of drug companies, and several companies manufacture generic preparations using different brand names. Various factors lead to prescriptions of drugs that are not necessary and combinations that are irrational [1, 2, 3].

The irrational use of drugs is a major problem of present day medical practice [4]. Rational use of drugs [3, 5] requires ---

- Patients receive medications appropriate to the clinical needs.
- For adequate period of time.
- In correct doses.
- In cost effective manner.

The irrational [5, 6] use of drugs results in --

- Ineffective treatment.
- Development of resistance to antibiotics.
- Unnecessary prescription of drugs.
- Adverse effects.
- Economic burden on people and society.

In spite of various attempts by multinational agencies like WHO, irrational use of drugs is still a common practice [5] by both qualified physicians and practitioners of alternative medicine.

Materials and methods

One hundred and fifty prescriptions were collected prospectively from post-operative patients admitted in surgery wards of tertiary care teaching hospitals of Southeast India situated in the twin cities of Bhubaneswar and Cuttack.

These were subjected to analysis according to WHO/INRUD indicators---

- Number of drugs per prescription.
- Number of antibiotics per prescription.
- Number of drugs prescribed by generic name.
- Number of drugs prescribed from WHO model list of essential medicines (EML).
- Number of injections per prescriptions.

The cost per prescription was also studied. Vital, essential and non- essential (VEN) method was also applied to ascertain the quality of drug procurement. The information was compiled, scored and analyzed using WHO guidelines.

Observation and results

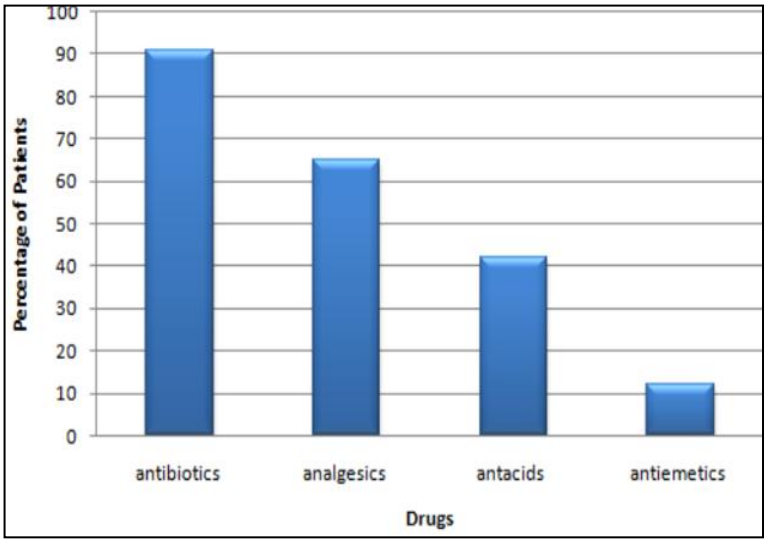

Fig 1: Various drugs given to different patients depicted in percentage

Among the studied prescription, the most common group of drugs prescribed by surgeons were (**Figure. 1**) antibiotics 91%, analgesics 65%, antacids 42% and antiemetics 12%. The most extensively prescribed drugs from each of the above groups were injections ceftriaxone and amikacin, tablets diclofenac, pantoprazole and metoclopramide respectively. Since these were post- operative patients no vital drug was prescribed.

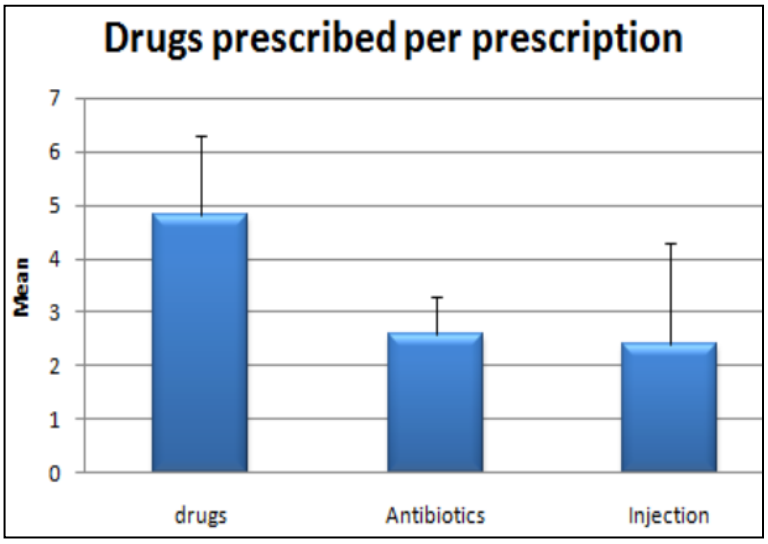

Fig 2: Mean and standard deviation as calculated after documentation

Average number of drugs prescribed per prescription was 4.8±1.5. The antibiotics per prescription were 2.6±0.7 and (Figure 2) injections per prescription were 2.4±1.9.

Since there is no hospital formulary, the prescription of drugs was studied from WHO model list of essential medicines. Only 64.2±11.7 % of drugs were prescribed from EML. None of the drugs were prescribed by generic name. The average cost incurred by the patient was Rs 328.5+69.2 INR per day [7, 8, 9].

Discussion

The internal review of the entire study and exercise showed that the pattern of drug prescribing was not based on WHO criteria for rational use of drugs. The prescribing system was not at all evidence based. The proportion of drugs prescribed from EML was low with an average prevalence of more than two antibiotics given unnecessarily with extensive use of other drugs. There was no drug prescribed by generic name. An interesting observation pertaining to the choice of antibiotic prophylaxis in surgery was use of ceftriaxone with amikacin in majority of cases despite the awareness of similar gram-negative coverage inherent in this combination. The most commonly presented analgesic was diclofenac followed by tramadol. Also, PPI were prescribed too often though, there might have been no requirement. Routine polypharmacy leads to economic burden in patient and society and makes health

care unaffordable to common India masses. It is then necessary to make surgery aware about the use of drugs from EML, importance of prescribing drugs from generic name and vital factor of cost benefit.

Areas of Improvement can be many like [10]

- CMEs
- Drug information services
- Side effects
- Drug-drug interactions
- CMEs based on GCPs
- CMEs based on STGs
- Drug utilization studies
- Feedback from to surgeons
- Standardized process of education and assessment
- Standardized guidelines in Post-operative pain management.
- Drugs and therapeutic COMMITTEEs.

Conclusion

Results indicate that there is scope for improving prescribing habits among the prescribing fraternity and minimizing the irrationality in prescription, use of evidence based medicine and following the WHO parameters.

There is also a need for awareness of surgeons for following WHO guidelines of Rational use of drugs. It is also important to minimize the use of antimicrobial agents.

References

1. Sarkar PK. A rational drug policy. Indian J Med Ethics 2004; 1:11-2.
2. Srinivasan S. A network for the rational and ethical use of drugs. Indian J Med Ethics. 2004; 1:13-4.
3. The Role of Education in the Rational Use of Medicines, WHO SEARO Technical Publication Series No.45. New Delhi: 2006.
4. WHO, Rational use of medicines, Fact sheet N°338 May 2010 available from: http://www.who.int/mediacentre/ factsheets/ fs338/en, accessed, 2014.
5. The rational use of drugs, Report on the conference of experts Nairobi, sponsored by W.H.O. Geneva, 1985, 25-29.
6. Vance MA, Millington WR. Principles of irrational drug therapy. Int. J Health Serv. 1986; 16(3):355-61.
7. Chaudhury RR, Parameswar R, Gupta U, Sharma S, Tekur U, Bapna JS *et al*. Quality Medicines for the Poor: Experience of Delhi Programme on Rational Use of Drugs (1995-2000). Health Policy Plan, 2005; 20:124-36.
8. Hogerzeil H. Promoting rational drug use: an international perspective. British Journal of Clinical Pharmacology, 1995; 39:1-6.
9. Bates D, Spell M, Cullen D *et al*. The costs of adverse drug events in hospitalized patients. JAMA. 1997; 277(4):307-311.
10. Laing R, Hogerzeil HV, Ross-Degnan D. Ten recommendations to improve the use of medicines in developing countries. Health Policy and Planning. 2001; 16(1):13-20.