

Drug utilization study in postoperative patients in obstetrics and gynaecology ward of tertiary care hospital

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ABSTRACT

Background: A growing number of pharmaceutical products are available in the world market and there has been an increase both in the consumption of the drugs and in expenditure on them. The aim of the study was to analyse drug usage in post-operative patients in obstetrics and gynaecological ward and to assess the prescribing indicators (WHO: Core Drug Use Indicators).

Methods: A prospective observational study was conducted over a period of six months, after getting approval from Institutional Ethics committee. A specially designed proforma was used to collect the data of post-operative patients in Obstetrics and Gynaecological ward of a tertiary care hospital. The data was analysed using descriptive analysis with the help of SPSS software.

Results: A total of 582 cases were analysed during the study. Out of 582 patients, 559 (96%) were prescribed with parenteral cefotaxime and metronidazole. Post-operative pain was managed with tramadol (96%). All patients were prescribed with an antibacterial agent and analgesic (100%). The percentage of encounters with an injection prescribed was 100% in our study. Out of 19 different drugs prescribed, 16 (84.21%) were from the Essential Medicines WHO Model List (2015) and 10 (52.63%) were prescribed by their generic name.

Conclusions: The present study provides valuable insight about the overall pattern of drug used in postoperative patients. The study is useful in decreasing the irrational prescription, which helps to decrease the morbidity and health care burden in the society.

Keywords: Drug utilization, Post-operative, Obstetrics and gynaecology

INTRODUCTION

WHO defines drug utilization as “the marketing, distribution, prescription and use of drug in a society with special emphasis on resulting medical, social and economic consequences.”¹

The principal aim of drug utilization research is to facilitate rational use of drugs in the population. A growing number of pharmaceutical products are available in the world market and there has been an increase both in the consumption of the drugs and in expenditure on them.² Although rational use of drugs is quite a usual practice but sometimes certain factors may cause irrational practice. Monitoring of prescriptions and drug utilization studies could identify the associated problems and provide feedback to prescribers.³

In most hospitals and clinics, conventional antibacterial therapy is given usually for 7-10 days to postnatal

patients with episiotomy as well as post-surgical patients. It increases the cost for the patient, increases workload on hospital staff and results in emergence of antimicrobial resistance.⁴

Surgical site infections are common complication of obstetric and gynaecological surgeries; up to 10% of gynaecological patients undergoing an operative procedure will develop a surgical site infection.⁵ The principles of surgical prophylaxis have been established over years. Selection of antibacterial agent for prophylaxis should be based on its activity against anticipated bacteria at the specific surgical site.⁶ Properly timed accurate dose of preoperative antibacterial agent reduces the incidence of surgical site infection.⁷

Developing countries have limited funds available for healthcare and drugs and it becomes very important to prescribe drug rationally so that the available funds can be utilized optimally.⁸

Postoperative utilization of drugs is very much marked. Drugs are prescribed for the purpose of analgesia, prevention of infection, nausea and vomiting, to maintain the haemodynamic status.⁹ Since there are very few studies which describe the utilization of drugs postoperatively, this study was conducted to provide the drug utilization pattern in postoperative wards.

METHODS

The study was conducted in department of Obstetrics and Gynaecology of a tertiary care teaching hospital. Case records of the patients admitted to Obstetrics and Gynaecological post-operative ward were collected after obtaining the approval of Institutional Ethics committee.

Details of each case were recorded in separate predesigned and pretested proforma.

As per selection criteria, total 582 patients were enrolled in the study and demographic data, diagnosis, on-going treatment were recorded and analysed.

Inclusion criteria

- The patients who underwent major operative procedure in the age group of 18 to 70 years were recruited in this study.

Exclusion criteria

- Patient who were not consenting for the study
- Patient discharged against medical advice
- Patient who were referred to higher centre were excluded from the study.

Data analysis

Rationality of prescription was analysed by comparing with following WHO prescribing indicators –

- Average number of drugs per encounter.
- Percentage of drugs prescribed by generic name.
- Percentage of encounters with an antibiotic prescribed.
- Percentage of encounters with an injection prescribed.
- Percentage of drugs prescribed from essential drugs list or formulary.

Data were analysed using descriptive statistics.

RESULTS

In the present study, total numbers of patients were 582. The patients had undergone different types of surgeries during the study. Lower segment caesarean section (LSCS) was the most common surgery (546 patients), followed by hysterectomy (36 patients). Among the

Lower segment caesarean section, most common performed surgery was Emergency LSCS, followed by Elective LSCS. Different indication for lower segment caesarean section is shown in Figure 1.

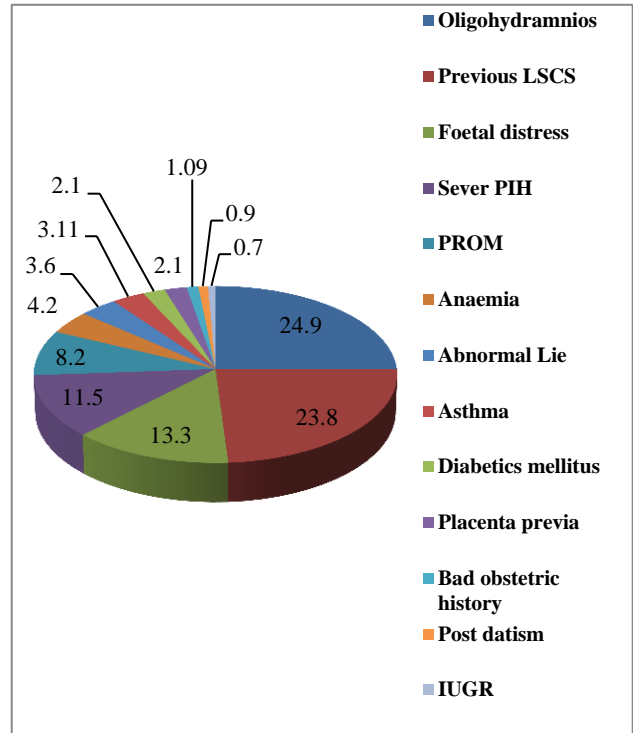


Figure 1: Indications for LSCS.

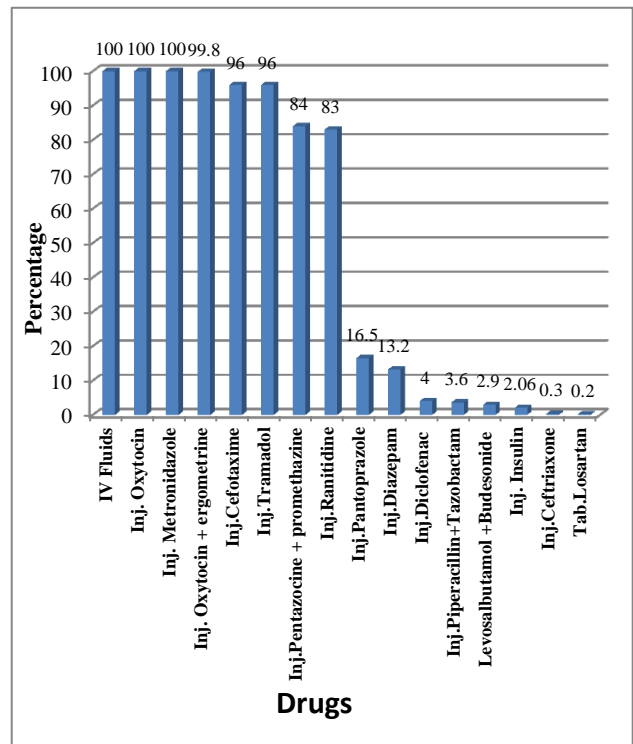


Figure 2: Percentage of most commonly used drugs.

Table 1: Percentage of antibiotic usage (n=582).

Antibiotic	Group of antibiotic	Frequency	%
Inj. Cefotaxime	Cephalosporin	559	96
Inj. Metronidazole	Antiamoebic	582	100
Inj. Piperacillin & Tazobactam	Beta-Lactam	21	3.6
Inj. Ceftriaxone	Cephalosporin	2	0.3

Most commonly prescribed drugs in decreasing frequency are shown in Figure 2. The average number of drugs prescribed per patient was 9.8.

In our study, total patients with an antimicrobials prescribed were 582 and percentage of patients with an antibacterial prescribed was 100% (Table 1).

Most commonly used antibacterial combination was metronidazole (582) along with cefotaxime (559) and piperacillin and tazobactam (21). An injection was prescribed in all the 582 patients either as an injectable antibacterial agent, or an injectable analgesic or intravenous fluid. Thus the percentage of patients with an injection prescribed was 100% in our study.

The antibacterial agents were given for average duration of 3 to 5 days. In our study we found that out of 19 different drugs 10 drugs were prescribed by generic name (52.63%) and remaining 9 drugs were prescribed by brand name (47.3%) (Figure 3).

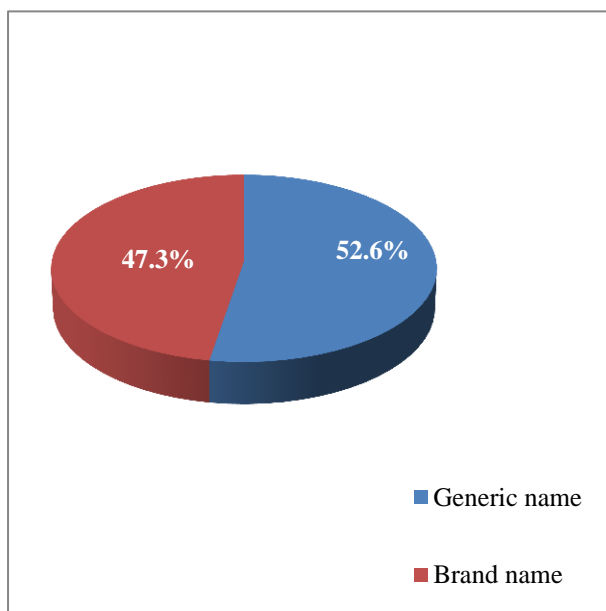


Figure 3: Percentage of drugs prescribed by generic name.

Out of 19 different drugs prescribed, 16 (84.21%) were from the Essential Medicines WHO Model List (Figure 4). The post-operative pain was managed with Tramadol

(96%) with average duration of 3-5 days, followed by pentazocin (87%) and diclofenac sodium (4%) (Figure 5).

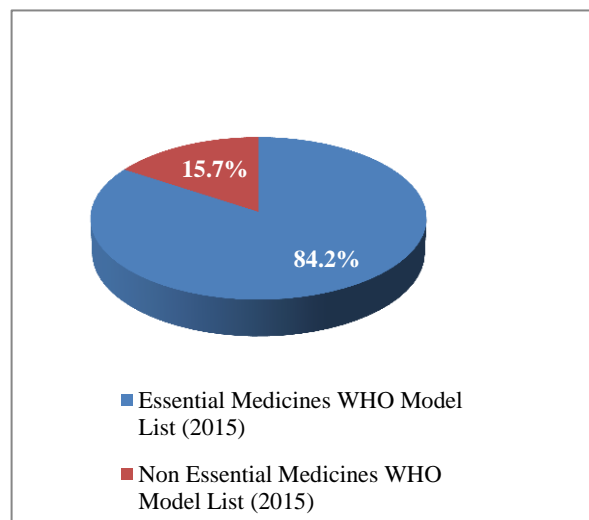


Figure 4: Prescription from essential medicine list.

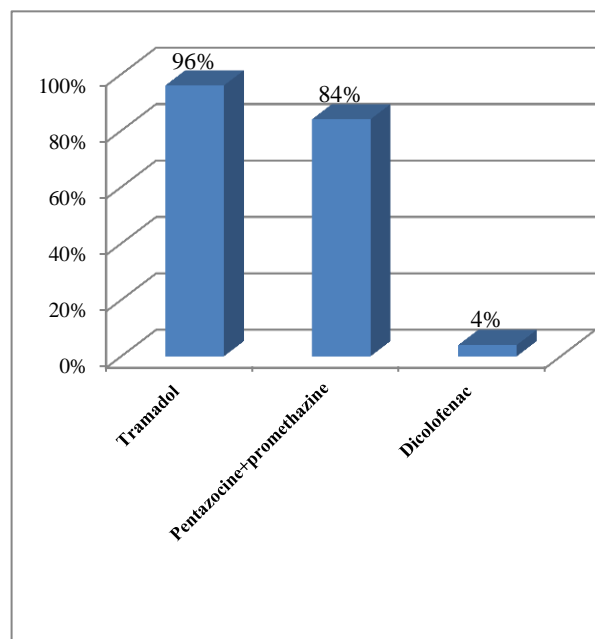


Figure 5: Percentage of analgesic usage.

DISCUSSION

Rational use of antimicrobial is extremely important as injudicious use can adversely affect the patient, cause emergence of antimicrobial resistance and increase the cost.¹⁰⁻¹¹

The use of antibacterial prophylaxis has been shown to prevent post-surgical wound infection. When employed rationally, significant reduction in the mortality and morbidity and saving in resources can be achieved.¹²⁻¹³

The purpose of antibacterial prophylaxis is to prevent postoperative infections, which are the primary cause of morbidity and mortality in patients undergoing surgery today. Aseptic techniques alone could decrease, but do not completely eliminate bacterial contamination of the surgical field. Therefore, the need for antibacterial agent to supplement aseptic technique becomes more widely accepted.¹⁴

In present study, surgery for LSCS was very common and accounted for a total of 546 patients which was 93.7% which is higher than the findings of Shah BK et al which was 45.5%.¹⁵ This difference is because, in our study most of the patients were from low socioeconomic status and rural area. Most of the cases were of emergency LSCS (56.5%), because trial labour was tried before taking any patient for surgery, unless there was an absolute indication.

In our study major indication for emergency LSCS was oligohydramnios (24.9%), followed by history of previous LSCS (23.8%) and fetal distress (13.3%).

The average number of drugs prescribed per patient was 9.8 with range of 5-19 which was lesser to findings of Agarwal JM et al (10.5) and Gyawali S et al (10.6).^{2,16}

Most commonly used antibiotics in our study were Metronidazole (100%), Cefotaxime (96%), Piperacillin plus Tazobactam (3.6%), ceftriaxone (0.3%). Study of antimicrobial preference by Shah BK and Shah VN showed that Ciprofloxacin was maximally used (60.90%) followed by ampicillin (54.54%) and metronidazole (39.69%).

This difference may be due to difference in the availability of drugs in different regions. In the study conducted by Heethal J et al most commonly used antibiotic combination was Cefotaxime plus metronidazole (35%), followed by ceftriaxone (25.3%) and ampicillin (17.2%).¹⁷

The current antimicrobial preference data provides that Cefotaxime was the most commonly given to the obstetrics and gynaecological post-operative patients to minimize the surgical site infections which has also been shown different similar studies.

To prevent injection-associated infections, injection use needs to decrease and injection safety must be achieved. Several interventions were conducted world-wide to decrease injection overuse and/or to achieve safer practice. Some of them were very successful. Better communication between prescriber and patients and managerial approaches (i.e. restricting access to selected unnecessary and dangerous injectable drugs) can reduce overuse.^{18,19}

In our study all the post-operative patients were given injection (100%) which was comparable to findings of

Agarwal et al (88.13%) and higher to findings of Gyawali S et al (57.04%).^{2,16}

Pain is an unpleasant sensation occurring in varying degrees of severity as a consequence of injury, disease, or emotional disorder. Poor pain control is unethical, clinically unsound and economically wasteful.

Acute painful disorders are treated instantly; on the other hand severe post-operative pain and severe visceral pain are under diagnosed and under treated. Successful postoperative pain control was achieved by efficient use of health resources and patient's satisfaction. Large varieties of analgesics are available in the market which may lead to the problem of irrational prescription.²⁰⁻²²

The present study shows that Tramadol was the most frequently used opioid analgesic by intravenous route followed by pentazocine and diclofenac which was 96%, 84% and 4% respectively. Kolawole IK et al showed that Pentazocin was the most commonly used analgesic followed by tramadol which was 86.4% and 13.6% respectively.²³

Like most part of the world opioid analgesic is the mainstay of post-operative pain control in our hospital. However potent opioids like morphine and pethidine which have been found useful and effective for pain control following major surgical procedure were not used in our hospital because of non-availability of these drugs.

As prescribing by generic name will help for rational use of drugs with regard to cost, safety and efficacy by permitting the identification of the products by its scientific names, we wanted to analyse this parameter also.

In our study we found that out of 19 different drugs 10 drugs were prescribed by generic name (52.6%) and remaining 9 drugs were prescribed by brand name (47.3%) which was similar to findings of Bhansali NB et al (48.7%).⁹ In study done by Kumarasingam T et al it was found that percentage of drugs prescribed by generic name was 39% which was lesser than the findings of our study.²⁴

Essential drugs are those that satisfy the health care needs of the majority of the population; they should therefore be available at all times in adequate amounts and in appropriate dosage forms and at a price that individuals and the community can afford.

This concept is intended to be flexible and adaptable to many different situations; exactly which drugs are regarded as essential remains a national responsibility.²⁵ Out of 19 different drugs prescribed, 16 (84.2%) were from the Essential Medicines WHO Model List which was similar to other studies like Agarwal et al (85.1%) and Falguni et al (92.8%).^{2,5,26}

CONCLUSION

The present study provides valuable insight about the overall pattern of drug used in postoperative patients. The study is useful in decreasing the irrational prescription, which helps to decrease the morbidity and health care burden in the society.

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