

Pharmacological management of women undergoing C-Section in a Tertiary care hospital

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Abstract

Pharmacotherapy during the gestation period plays a crucial role in the healthy outcome of the delivery and also aids in the wellness of the mother. The objective of the present study was to evaluate the drug use pattern in LSCS patients in our hospital and to assess the rationality using WHO prescribing indicators. The study included 220 pregnant female of which 16% were below 20 years and 38% were between the age of 21-25 and 25 % were between the age of 26-29 and 20% were 30 and above. Out of 220, 51% of women were "primigravida", 27% women with G2P1L1, and 22% belonged to Gravida three. 96% patients were indicated for elective LSCS procedure whereas only 4% were indicated for emergency LSCS procedure. The most common antibiotic prescribed was Cefotaxime (59%) followed by metronidazole. The most common opioid analgesic given was Inj. Tramadol 78%. The most common NSAID used was Inj. Fenlong 62% followed by Tab. Paracetamol 38%. As per the FDA category, out of 10 major drugs the drugs belonging to Category A is 10% and Category B is 30%, Category C is 60%. This study reflects that there are different implications of a particular class of drug by different people. Though there are variations, the final outcome of the patient is what is important. For a good outcome the Doctors may deviate from standard drug choice, dosage and route of administration

Keywords: Prescription pattern, caesarean section, pregnant women.

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1. Introduction

The rate of caesarian delivery is increasing every year in India and so is the quality of the procedure. The preoperative pharmacotherapy plays a crucial role in the inclination in the success rate. Most of the woman, especially in India feels complete when they achieve the maternity status. Pharmacological management during pregnancy must be done precisely so that the drug doesn't cause any danger to the fetus. The concern about prescribing correct drug arouse only after few historical tragedies such as 'thalidomide tragedy'. Since the happening of such events, utmost care is taken in prescribing a drug that is not teratogenic.

The process of choosing the drug is based on the interaction between the physiological events happening

during the pregnancy period and the pharmacokinetics of the drug.

Prescription pattern of drugs is not standardized in India; it's different in different institutions and also different from every physician. Pregnant women receive a range of drugs from normal antibiotics to opioids and steroids.

Maternal mortality refers to deaths due to complications occurring between the time of conception till the delivery of the baby. The maternal mortality rate in India has decreased from 167 in the year 2011-2013 to 130 in 2014-2016, a 22% decrease [1]. This might be due to the over aggressive prescription of antibiotics. The main cause of maternal mortality is infection. This is tackled by antibiotics. The antibiotics being an over the counter drug

and also prescribed by lot of doctors is overused by patients. The problem in it is that, bacteria in the body might develop resistance to the drugs and it will be a problem in future where there will be less chance of cure to bacterial infections.

Opioids use during pregnancy time and also postoperatively to relieve pain are so common. Approximately 20% of patients presenting to physician with non cancerous pain receive opioid prescription [2] Opioid pain medication use for a long term results in opioid overdose and opioid use disorder. This results in opioid addiction. Patients use the prescription to get the opioid drug and use it for normal pain.

LSCS is a major abdominal surgery made by a pfannenstiell incision and it requires preoperative as well as postoperative care. The pregnant women should be prepared for the procedure in case of elective LSCS done. The surgical procedure is indicated only when there is a reason such as Placenta previa, Placental rupture, Previous history of LSCS, Breech position, Diabetes, Pre- eclampsia. Private sector deliveries had an odds ratio of 2.4 of a primary caesarean section delivery in comparison with the public sector after adjustment for parity, age at delivery of mother and educational status [4]. The number of drugs that are prescribed in patients undergoing normal vaginal delivery (NVD) is less than that is prescribed for a Caesarean section. This advanced medical procedure also comes with drawbacks in the form of drugs. Opioids and other painkillers are used more in patients with LSCS. Also the psychological condition of women undergoing C-section is disturbed. [5]

C-section birth has almost doubled between 2000 and 2015 globally. WHO reported a 3.7% increase per year in C-section rate globally from 2000 to 2015. The large increase in C-section deliveries, mostly in richer setting for non medical purposes are concerning because of the associated risks for the mother and the child. On the other hand it is the only way when the normal vaginal delivery fails to happen. Issues arise when the surgical procedure is done just for monetary benefits.

Women between the age of 20-30 are more commonly getting pregnant. These age groups are commonly targeted with lots of drugs. The problem is these women who are exposed to lots of drug at this age might face a health issue in the later part of their life which might be due to the drugs prescribed to them during the pregnancy period. Unfortunately few doctors become a part of this issue.

We should not use the advancement in biotechnology in a way that it would become a part in the hindrance of the healthiness of our patient. The use of our medication should be appropriate and reasonable in every

case. This study is done to find the normative pattern of prescription for pregnant women and also to find where the doctors go wrong in prescribing.

1.1 Objective:

To evaluate the drug usage pattern among patients who underwent lower segment cesarean section in our hospital and to assess the rationality of these prescriptions using WHO core drug prescribing indicators.

2. Materials and methods:

Study Design: Retrospective Observational Study.

Study Duration: The study was conducted for a period of 5 months starting from December 2018 to April 2019.

Study Place: The study was conducted in Medical Records Department of Saveetha Medical College and Hospital

Sample size: The appropriate sample size required for the study was determined using the statistical formula based on confidence interval, margin of error and population proportion.[13]

Study Population:

Inclusion criteria:

The data of all pregnant women who underwent lower segment caesarean section in Saveetha medical college and hospital from January 2012 to March 2019 were included in our study.

Exclusion criteria:

- 1) Patients who underwent normal vaginal delivery were excluded from the study
- 2) Illegible prescriptions were excluded.
- 3) Incomplete data were excluded

Procedure:

- The study was carried out after getting approval from the Institutional Ethics Committee. Permission to carry out the study was also obtained from Head of Obstetrics and Gynecology Department before conducting the study.
- Data such as age of the patient at the time of admission in our hospital, obstetrics score, previous medical history, reports of regular antenatal checkup, indication for LSCS, drug chart of all booked patients who underwent LSCS during the study period were included in the study.
- Rationality of prescribing the drugs was evaluated by using the WHO core drug prescribing indicators.

3. Results

A total of 220 patients were included in our study after screening for inclusion and exclusion criteria. The study included 220 pregnant female of which 16% were below 20 years and 38% were between the age of 21-25 and 25 % were between the age of 26-29 and 20% were 30 and above as depicted in table 1. It is clearly understood that most of the women were between the ages of 21-25(38%).

Table 1: Age distribution of patients undergoing LSCCS

Age distribution	Women undergoing LSCS
20 and below	36 (16%)
21-25	84 (38%)
26-29	56 (25%)
30 and above	44 (20%)

The obstetric score of the patients noted are represented in Fig 1. Out of 220, 51% of women were “primigravida”, 27% women with G2P1L1, and 22% belonged to gravida three. Most of the patients in our study were primi mothers.

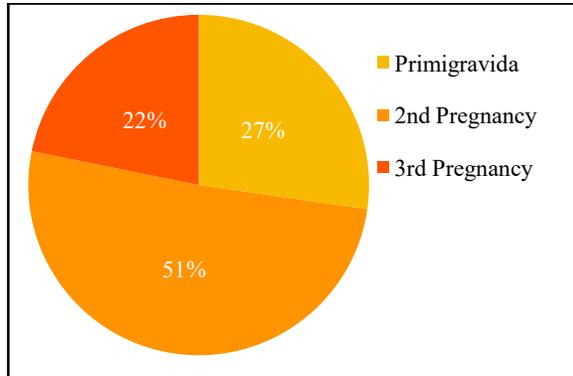


Figure 1: Obstetric Score of the LSCS patients

Out of 220 patients 96% were indicated for elective LSCS procedure whereas only 4% were indicated for emergency LSCS procedure. This data is represented in the following Figure 2.

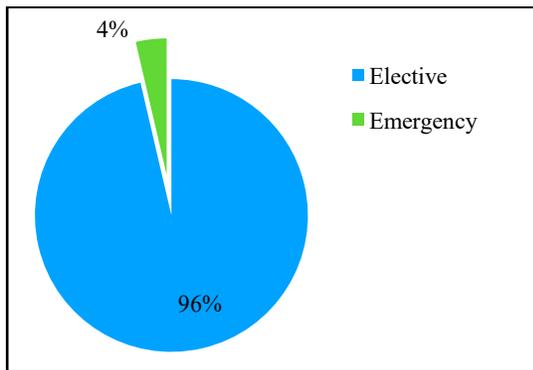


Figure 2: Indication for LSCS

Also the previous history of abortion was noted, 16% were presented with the prior history of abortion. (Table 2) Among the 220 patients, 120 patients adopted for sterilisation procedure. (Figure 3)

Table 2: Previous History of Abortion

History of abortion	Number of patients
Abortion	36
No abortion	184

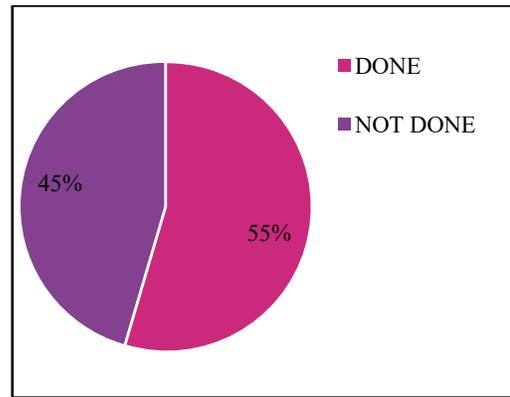


Figure 3: History of Sterilisation

Various classes of drugs were prescribed by the physician which included antibiotics, pain relievers, opioids, steroids, NSAID, antihistamines, etc. The most common antibiotic prescribed was Cefotaxime followed by metronidazole. The most common opioid analgesic given was Inj. Tramadol 78%. The most common NSAID used was Inj. Fenlong 62% followed by Tab. Paracetamol 38%. The drugs which were most commonly used were antibiotics and ranitidine (Figure 4-6)

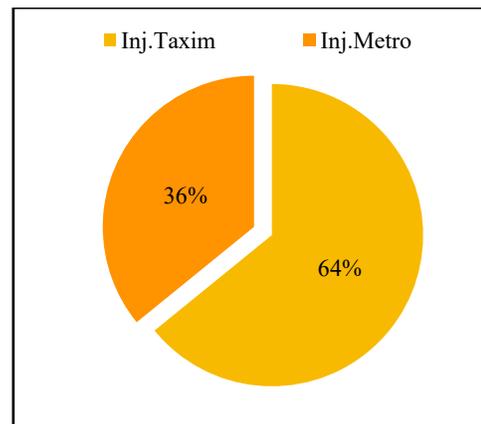


Figure 4: Antibiotics Prescribed

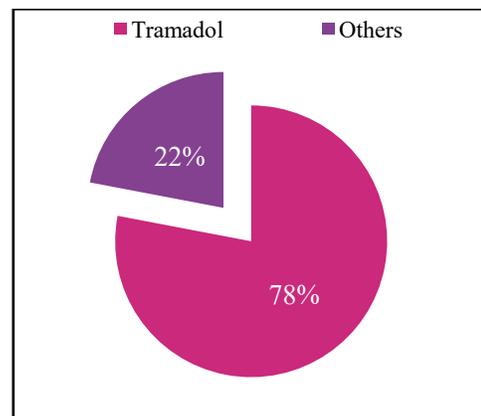


Figure 5: Opioids Prescribed

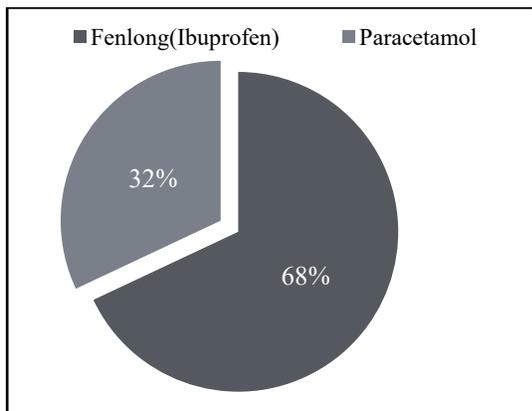


Figure 6: NSAIDS Prescribed

- The average number of drugs prescribed per prescription is 7.8.
- Percentage of Generic name used was 36.65%.
- Percentage of drugs prescribed from National List of Essential Medicines (NLEM) is 49.19%. 4.
- Percentage of drugs given in injectable form is 54.29%.
- Percentage of antibiotics prescribed was 94.31%.

The WHO Prescribing indicators assessed are represented in Table 3.

Table 3: WHO Prescribing Indicators assessed

Indicator	Calculation (n=220) (Total no. of prescribed drugs=1724)	Value (%)
1. Average Number of drugs per prescription	1724/220	7.8
2. Percentage of Generic name used	632/1724	36.65
3. Percentage of drugs prescribed from NLEM list	848/1724	49.18
4. Percentage of drugs given in injectable form	936/1724	54.29
5. Percentage of antibiotics prescribed	1626/1724	94.31%

As per the FDA category, out of 10 major drugs the drugs belonging to Category A is 10% and Category B is 30%, Category C is 60%.

4. Discussion:

The drug prescription pattern is not standardized in our country and it varies from one doctor to other and from one hospital to the other. Few prescribe more and few prescribe less. However the final outcome of the patient is what is important. The study includes 220 prescription patterns of booked patient who underwent LSCS procedure in Saveetha Medical Hospital. The study included women of reproductive age. Out of 220 most of them were between 21 and 25 (38%). This is similar to the study done by Neelam Sharma *et al* [7].

Population crisis is one of the major problem to the people of society especially in a developing country like India. Most of the people opt to stop with two children. The study includes the data of Sterilisation done along with LSCS procedure. Out of 220 patients 54.5% (120) chose sterilisation. This is similar to the study done by Kanmani *et al*[8]

Among the 220 patients 27% were primigravida and 50.9% were pregnant for the second time. This is similar to study done by Swathi Kohtha *et al*, which also included more number of patient with second pregnancy [9]. Based on planning for the procedure for LSCS the method is divided into elective and emergency LSCS. Out of 220 patients, 212 patients have undergone elective LSCS

and 8 patients went for emergency LSCS. The reason for the emergency procedure is foetal distress, meconium aspiration, non progressive labour. This is similar to the study done by Lulu *et al*, Vesna *et al*, Najam *et al*, which also had more number of elective LSCS and relatively less emergency LSCS and also the reasons were similar. [10-12]

Various classes of drugs were used among which ranitidine and antibiotics are the most common drugs used followed by opioid analogue, NSAID etc. Among the antibiotics the most commonly prescribed was Cefotaxime under the brand name Taxim. It is a category B drug. The other most common drug prescribed was Ranitidine. This is similar to the study done by Sasidharan P *et al*, which also included similar results. [13]

As per the FDA category, out of 10 major drugs the drugs belonging to Category A is 10% and Category B is 30%, Category C is 60%. These results are similar to study done by Andrade SE *et al*. [14] but are contrast to some other study [15-17].

4. Conclusion

In our study, antimicrobial agents, analgesics and ranitidine were the most commonly used drugs which is justified as the patient undergoing a major surgery like LSCS require these prophylactically for pain and prevention of infections. Usage of drugs in injection form was also high. However, this is acceptable as most of the patients undergoing LSCS might require drugs in injectable formulations during the post operative period. Most of the

drugs were prescribed by generic name and from NLEM which indicates rational prescribing. More number of drugs can be prescribed from FDA Category A or B to prevent risk to the baby.

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