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Commentary

Antibiotics, Enzymes Use Recommendations during Cesarean in Mothers

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Abstract

Cesarean sections have become safer thanks to advances in anesthesiology. This has led to better neonatal survival. The rates of cesarean operations have increased. The healthy pregnant women who undergo this operation should not be burdened by unnecessary antibiotics. Various professional organisations have recommended only a single dose of antibiotics prior to the cesarean delivery. However, due to peer pressure or being unaware of the recommendation, a five to seven day course of antibiotics and enzyme preparations are being prescribed. This may result into avoidable side effects, cost, resistance and poor doctor –patient relationship.

Keywords: *adverse drug events, antibiotics, breast milk, cesarean section, diarrhea, enzymes, LSCS, neonate*

Introduction

The Cesarean sections (LSCS) have saved lives of many newborns due to its safety, availability of clean theatres, disposables, and Universal Aseptic Precautions. The antibiotic usage guidelines of FOGSI (Federation of Obstetrics & Gynecological Society of India)[1], ACOG (American College of Obstetricians and Gynecologists)[2] , and WHO[3] therefore, recommend *only a single dose of antibiotic* 30-60 minutes prior to incision.

However, in spite of such evidence, enzymes like chymotrypsin and serratio-peptidase, and antibiotics are being prescribed for as long as two weeks. These drugs eventually get secreted in the breast milk and then may cause diarrhea due to the alterations of the neonatal gut flora.

An adverse event report from India has reported of two neonates who developed diarrhea after 10 days of such enzymes like Chymotrypsin and Serratiopeptidase used ostensibly 'to reduce stitch edema' and 'for faster healing'.[4,5] The diarrhea stopped after the above drugs were discontinued in Mothers. No other medications or ORS was given to babies. Exclusive Breast feeding was continued. Mothers were asked to drink more water to increase the breast milk output.

Similarly antibiotics (Cephalosporins, Amoxycillin +Clavulinic acid) are being used in mothers post-cesarean for 7 to 10 days that may lead to costs, side effects, adverse events, prolonged stay, and it being unnecessary also.

Cesarean Antibiotic Guidelines Summary

FOGSI [1]: For either a Planned or Emergency Cesarean delivery before the onset of labor, and before the membranes rupture, use intravenous inj. *Cefazolin* 1-2 g within 15–60 min prior to skin incision [Level of Evidence 1A - very strong]. Usual dose is IV 1 g, with higher dose (2 g) for women weighing >100 kg.

ACOG [2]: Recommend as *Prophylaxis* for all mothers to receive, within 60 minutes before the start of the cesarean section [as soon as possible after the incision, for emergency], unless she is already receiving broad spectrum coverage; and in absence of allergy, intravenous IV *Cefazolin* 1 g for normal BMI (weight ≤80 kg), and 2 g for BMI ≥30 (weight ≥80 kg).

Key Points- preop skin cleansing with Chlorhexidine-alcohol prior to cesarean; while vaginal cleansing before cesarean *'may* be considered'.

WHO [3]: (see Table) *Key Message* is that, the antibiotic indications should *balance* health benefits for the mother and newborn; while looking to the safety (e.g. adverse effects, drug intolerance), and the public health duty to reduce antibiotic resistance. Use as per guidelines, avoid broader spectrum, in a proper dose; and adapting to local bacteria antibiogram. A *single dose of first-generation cephalosporin or penicillin* before incision, for plan or emergency cesarean delivery is recommended.

In addition, the guidelines mentioned in '**LaQshya**' (Labour Room Quality Improvement Initiative of National Health Mission, India) should be followed and monitored [6] [*Laqshya* (*Hindi*) means target/ aim/ goal].

Table: Interventions for prevention and treatment of Maternal Peripartum Infections: Rationale and Implementation Guidance [3] [from WHO/RHR/15.19].

WHO Recommendation 2015	Rationale and Implementation Guidance
I. Prevention of Peripartum Infections- cesarean section	
Recommendation 18: Routine antibiotic prophylaxis is recommended for elective or emergency cesarean section.	• High-quality evidence demonstrates the clinical benefits of prophylactic antibiotics administered prior to incision (greatest benefit) /or during cesarean section.
Recommendation 18.1: For cesarean section, prophylactic antibiotics prior to skin incision, rather than intra-operatively after umbilical cord clamping.	• Maximal benefit can be expected when prophylactic antibiotics are administered between 30–60 minutes before skin incision. • Prophylactic antibiotics are still beneficial when used outside the suggested timeframe (ie, 15–60 minutes before incision) during cesarean or after umbilical cord clamping for the prevention of post-cesarean infectious morbidities when the available time might be lim-
Recommendation 18.2: A single dose of *first-generation cephalosporin or penicillin* should be used in preference to other classes of antibiotics.	• No evidence demonstrates that any class of antibiotic is better than the other for prophylaxis for cesarean section. However, *first-generation cephalosporins and penicillin* have an advantage in terms of cost and wide availability in all settings. • Due to high risk of necrotizing enterocolitis in a preterm neonate the use of '*co-amoxiclav*' for prophylaxis should be avoided.
II. Treatment of Peripartum Infections	
Recommendation 19: A simple regimen eg *ampicillin* and *once*-daily *gentamicin* as first-line antibiotics for chorioamnionitis.	There is no clear evidence as to whether antibiotics should be discontinued or continued after birth; women with sign, symptoms (eg fever, uterine tenderness) are likely to benefit from longer antibiotics for at least 24 to 48 hours after the infection has subsided.

Conclusion

Single dose of antibiotic The current recommendations to use *only a single dose of antibiotic prior to a cesarean section* should be followed, to avoid antibiotic abuse and side effect of diarrhea in a breastfed neonate. The enzyme preparations should not be used. Effort by all the stakeholders is required.

Conflict of Interest

None

Authors Contribution

JR Gohil conceptualized the paper and it was written and approved by both the authors.

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