

WOUND INFECTION; PREVALENCE IN ANAEMIC WOMEN AFTER CESAREAN SECTION

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ABSTRACT: Objective: To evaluate the effects of the anaemia in wound infection after cesarean section. **Design:** Prospective study. **Setting:** Department of Obstetric-Gynaecology in Sir Ganga Ram Hospital / Fatima Jinnah Medical College Lahore. **Period:** Sep 2008 to Sep 2009. **Patients and Methods:** The study comprises of 100 pregnant women with moderate to severe anaemia. Selected cases underwent cesarean section due to different indications. The rate and frequency of wound infection was observed in all these women. Results were analysed and tabulated. **Results:** 100 cases with moderate to severe anaemia who underwent cesarean section were included. Moderate anaemia was recognized in 55% of cases and 19% with severe anaemia. Wound discharge was seen in 44 % of cases and wound dehiscence was found in 56 % cases. Culture was positive in 41 % patients and majority of these were unbooked. Non elective cesarean delivery was performed in 99% of cases. **Conclusion:** The rate of wound infection was very high in moderate to severely anemic women who underwent non elective / emergency cesarean section.

Key words: Anemia, Wound infection, Pregnancy, Cesarean section.

INTRODUCTION

Anaemia is an extremely common disorder in pregnancy¹ and more prevalent in nonindustrialised countries. All pregnant women are evaluated for anemia as a part of routine prenatal care. Approximately one half of these women suffer from anaemia^{2,3,4}. The incidence of anemia varies according to race, region, nutrition and socioeconomic status.

Anaemia is defined as hemoglobin concentration less than 12 g/dl in non pregnant women and less than 10 g/dl during pregnancy. Hb is 8-10 g/dl in mild anemia, It is 6-8 g/dl in moderate anemia and it is less than 6 g/dl in

severe anemia.

Iron deficiency anaemia is the commonest type of anemia during pregnancy. It is essential to determine the type and presence of rare types of other anemia.

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Hemogram, peripheral smear, and the blood indices are the basic tests performed on a women with anemia. It is more common among indigent women⁵ and with post partum anaemia⁶. It is also associated with increased risk of preterm birth^{7,8}, FGR and hypertension as it influences the placental vascularisation⁹. The incidence of the abdominal incisional infection after cesarean section is reported between 3-15 % with in average of 7 %¹⁰. The risk factors¹¹ for post operative wound infection include anemia, obesity, diabetes and poor hemostasis with hematoma formation¹². It usually presents on 5th post operative day and is preceded by induration and erythema. Wound dehiscence may range from a small defect in skin to a burst abdomen. A small dehiscence does not require active management and heals by second intention. Complete wound dehiscence is a rare event and very exceptional after pfennensteil incision and can be largely prevented in vertical incision by mass closure¹³. It is more common in patients who are infected, malnourished or have underlying malignancy. Factors such as wound infection, abdominal distention and post operative cough are also contributory. A high index of suspicion should be maintained to avoid the readmission after wound break down.

PATIENTS AND METHODS

The study includes 100 patients who were admitted in department of Obstetric and Gynecology, Sir Ganga Ram Hospital Lahore which is a tertiary care hospital affiliated with Fatima Jinnah Medical College. The study was prospective and all women with severe to moderate anemia who underwent cesarean section were included in the study. A structured Performa was used to note the age, socioeconomic class, symptoms, physical examination, investigations and management till the patient was discharged. The data was analysed and tabulated.

RESULTS

Post operative wound infection rate was analysed in anemic women who underwent cesarean section. 55 % women presented with moderate anemia and 19 % with severe anemia with Hb less than 6 g/dl (Table I).

Majority of them were unbooked and non elective

cesarean section was carried out on 99 % of patients and only 1% had elective cesarean delivery after correction of anemia. (Table II).

Table-I. Distrubtion of cases according to severity of anemia (n=100)

| | No. of patients | %age |
|----------|-----------------|------|
| Mild | 26 | 26% |
| Moderate | 55 | 55% |
| Severe | 19 | 19% |

Table-II. Distribution of cases according to indication of cesarean section (n = 100)

| | No. of pts | %age |
|------------------------------------|------------|------|
| Elective lower segment C Section | 1 | 1% |
| Emergency; upper segment C Section | 99 | 99% |

Wound discharge was apparent even on the third post operative day but most of them had discharge from wound on 5th post operative day (44%) and 55% cases had wound dehiscence between 5th and 7th post operative day. Healing with second intention was allowed in minor cases but in complete dehiscence wound was restitched after complete debridement of necrotic tissue. One case was diagnosed with burst abdomen and was immediately under went wound closure under anesthesia. (Table III)

Table-III. Distribution of cases according to type of wound infection (n = 100)

| | No. of pts | %age |
|------------------|------------|------|
| Wound discharge | 44 | 44% |
| Wound dehiscence | 55 | 55% |
| Burst abdomen | 1 | 1% |

Wound swabs was taken and sent for culture and sensitivity in all patients. It was positive for different microbial agents in 41% patients. In 59 % the culture was negative and previous antibiotic cover was continued (Table IV).

Table-IV. Distribution of cases according to wound swab culture & sensitivity report (n = 100)

| | No. of pts | %age |
|------------------------|------------|------|
| Wound Swab cluture +ve | 41 | 41% |
| Wound Swab Culture -ve | 59 | 59% |

The commonest infective microbial organism was E.Coli 26.8 % followed by pseudomonas 19.5 %. MRSA and Staph aureus contributed 17% each. (Table V). Appropriate antibiotic was used according to sensitivity of organism. The mean hospital stay for these cases was between 10-12 days.

Table-V. Distribution of cases according to type of causative infective organism in culture +ve patients (n = 41)

| | No. of pts | %age |
|---------------|------------|--------|
| E Coli | 11 | 26.82% |
| Pseudomonas | 8 | 19.51% |
| MRSA | 7 | 17.07% |
| Staphaureus | 7 | 17.07% |
| Acenatobactor | 3 | 7.31% |
| Others | 5 | 12.9% |

DISCUSSION

The anemic status during pregnancy depends primarily on iron supplementation. It is important when evaluating its effects on pregnancy outcome in a typical singleton gestation. The maternal need for iron averages close to 800 mg. The total amount (1000 g) considerably exceed the iron stores of most women and results in iron deficiency anemia. The anemia increases the morbidity and mortality of both mother and fetus and is especially pronounced if mother undergoes cesarean delivery. Although many would argue that the current cesarean section rate is high. Many approaches to decrease the LSCS rate have been adovocated, it continues to be a frequently used methods of delivery. Maternal morbidity is increased dramatically with cesarean compared with that of vaginal delivery. Principal sources¹⁴ are infection and hemorrhage. The wound infection rate was very high

in emergency cesarean section as compared in our study to elective one (99 into 1). It is contributed by anemia, obesity, poor or no antenatal care, grand multiparity, and poverty. The incidence of abdominal incisional infection following cesarean delivery ranges from 3 to 15%^{15,16}. When prophylactic antimicrobial agents are given the incidence is less than 2 %¹⁷. Abdominal incisional wound abscess that develops after cesarean delivery usually cause fever on 3rd post operative day. Wound organism causing infection are usually the same as those isolated from amniotic fluid at cesarean delivery, but hospital acquired¹⁸ pathogens may also be the causative agents. Treatment includes antimicrobial therapy and surgical drainage. Wound dehiscence or disruption is the separation of fascial layers. It was alarmingly high in our study (55 %) as compared to 1:300 in Hutzel hospital¹⁹ in Detroit. The use of preoperative antibiotic prophylaxis and correction of anemia had remarkably reduced the post operative infection after the cesarean section^{20,21}. This observed benefit applies to both elective and non elective cesarean delivery.

CONCLUSIONS AND RECOMMENDATIONS

Wound infection rate is high in patients with anemia and those who underwent non elective cesarean section.

1. There should be better organization of primary health services to diagnosis and treat anaemia during pregnancy.
2. Implementation of nutritional and maternal education programs.
3. Joint action is also required by government and non government organizations to channel the available resources.
4. Child spacing should be encouraged with proper contraceptive measures.

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PREVIOUS RELATED STUDIES

- G. R. Bajwa, Ahmad Hassan Khan. Wound infection; Frequency in clean surgical operations. Professional Med J Sep 2009;16(3):337-341.