

Ethical Practices in C-Section Delivery and Prevalence of Post-Caesarian Complications in Pregnancy in Lahore

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Abstract-Background: caesarian section also termed as C-section may be associated with surgical site infection or in severe cases with systemic infections. Because of problem associated with C-section most of the people prefer natural vaginal birth. Ethical practice to perform C-Section involve consent of patient to perform C-section, providing information on benefits and risk associated with C-section.

Objectives: the aim of study was to observe the ethical practices in C-section delivery, prevalence of post-caesarian infections in pregnancy in Lahore and difference in public and private sector hospitals in C-section practice.

Methodology: cross sectional study was conducted using data collection form and face to face interview of patient health care provider, by visiting various public and private hospitals. The information includes vitals of patient, number of pregnancies, family history, cause of C-section and type of complication.

Results: the study showed that 100% received prophylactic antibiotics and aseptic swab procedure. Still occurrence of wound infection was 80% diagnosed by laboratory examination of pus. 75% cases of C-section were performed in multigravida women and 25% in primigravida women. 18% women were given adequate time for active labor. E. coli and S. aureus were found to be causative agent in 45% and 40% cases respectively. Foetal distress was leading cause of C-section covering 55% incidents and failure to progress labor being second leading cause with 25% cases.

Conclusion: All patients were provided with information about personal hygiene, benefits and risks of C-section. Despite providing prophylactic antibiotic most of the patients suffered from surgical site infections. Major causes of C-section were foetal distress and failure to progress labor. Mostly causative agents of infection were E. coli and S. aureus. Women with multigravida pregnancies were prone to C-section.

Index Terms: Ethical practices, prevalence, prophylactic antibiotics, surgical site infections.

I. INTRODUCTION

Pregnancy is a physiological condition spanning over period of nine months or thirty-six weeks during a woman carries a life i.e. fetus in her womb. [1] After completion of this period the baby is delivered through vagina naturally or by caesarian section. Caesarian section also called C-section is surgical procedure performed by incision in abdomen and uterus wall. C-section is often associated with complications like surgical site infections, tearing of scar, heavy blood loss, blood clots in lower limbs and lungs, and injury to other nearby organs like bladder. [2]

National institute for health and care excellence gave the guidelines for ethical practices in caesarian section to prevent or lessen the post caesarean infections. [3]

Generally, performance of C-section is not greeted because of its association with more complications than that are encountered in natural vaginal birth. Nevertheless, two school of thoughts exist regarding ethical practices in caesarian section, one believes that birth

being a natural process must be performed naturally through vagina and other opines that respecting human rights, desire of C-section must be entertained. American college of Obstetrician and Gynecology, and Italian law permits the conduct of caesarian section. [4]

Certain causes leading to C-section include placenta previa in which placenta lie low in uterus and cover the cervix that usually occur in third trimester, placental abruption that is separation of placenta from uterus lining, uterine rupture, breech position, cord prolapse in which umbilical cord slips through cervix protruding from vagina, foetal distress due to lack of oxygen, slow labor, repeated caesarian, cephalopelvic disproportion, active genital herpes, gestational diabetes, preeclampsia, birth defects and multiple births. [6]

To prevent infection, prophylaxis treatment consisting of antibiotics must be given but co-amoxiclave must not be administered. [3] The most prevalent complication after C-section is infection which include urinary tract infection, bladder infection and thrush. Thrush is caused by a fungus candida albican. This fungus cause infection in people taking steroids or in immunosuppressive patients. Catheter used during hospital stay can cause urinary tract infections. These infections are caused by E. coli and are treatable. [7]

Surgical site infections are frequently encountered in C-section, the signs and symptoms of SSI include, high fever and lower abdominal pain. Some women are at high risk of infection, these include, obese patients, immunosuppressive patients, diabetics, women with chorioamnionitis, women taking steroids and those with previous C-section. [7]

Surgical site infections are of two types i.e. cellulitis and abscess. Cellulitis is caused by staphylococcal and streptococcal bacteria. Cellulitis is characterized by swelling, warmth, redness without pus. Abscess is caused by same agents with same signs and symptoms except that pus is formed at the site of infection. [8,9]

Contaminated environment is major contributing factor in prevalence of infection. Prosthetic devices are also a cause of infection and thus must be contamination free. Infections can be prevented using effective antibiotic prophylaxis and by clean procedures. [7]

Preoperative medication in C-section includes, anesthesia, analgesics and antibiotics. Antibiotic administration at the time of incision largely prevent postoperative infections, however, certain unhygienic conditions may cause systemic and surgical site infections. [3,7]

II. MATERIALS AND METHODS

A cross sectional study was performed using data collection form during June to August, to observe the conduct of ethical practices in C-section, prevalence of infection and difference currency of C-section and infections in public and private sector. A questionnaire was designed encompassing the following features: patient demographics including age, weight, height, year of marriage, number of pregnancies, previous C-sections, family history, other aspects including provision of instructions to patient before C-section, cause of C-section, use of clean swab procedure, means of wound closure, time of active labor, time taken for surgery, diagnosis of causative agent, major causative agent, diagnosis of infection, type of infection, use of antibiotic prophylaxis.

Stud was conducted using convenient sampling technique involving 100 patients, in public and private hospitals by face to face interview of patients and health care providers and filling the questionnaire. 50 patients were taken from public and 50 patients from private sector. Sample included pregnant females, 18-40years of age. Patients with gestational diabetes and patients on any steroidal therapy were excluded from study.

III. RESULTS

The study was conducted in four hospitals of Lahore to determine conduct of ethical practices and prevalence of post-caesarian complications in 100 patients, 85% patients were informed about risk and benefits, surgical procedure (Fig.1). Directions about personal hygiene were given to 70% patients and instructions about removal of pubic hair that is not to use any chemical within seven days prior to C-section, were provided to 80% patients. (Fig.2) Aseptic swab procedure was performed in 100% patients. And all the patients were administered prophylactic antibiotics. (Fig.3). All incisions were closed by means of suture rather than staples i.e. 100%.

Only 18% patients were given time for active labor i.e. two hours and 82% were not given time for active labor at all or inadequate time that is less than 2 hours. (Fig.4). 75% cases of caesarian section involved multigravida pregnancies and 25% cases involve primigravida pregnancy. (Fig.5). C-section was performed due to, foetal distress in 55 patients, failure to progress in labor in 26 patients, breech position of fetus in 17 patients and cord prolapse in 2 patients. (Table.1)

None of the patients encountered post-partum hemorrhage, sepsis or thrombo-embolism regarding post-caesarian complication and 100% patients suffered from wound infection. (Fig.6). Among wound infections 75% were abscess and 25% were cellulitis.

Infection was detected within 10 days in 37%, within 7 days in 35%, within 5 days in 15% and within 3 days in 13% patients after discharge from hospital. (Fig.7).

Pus discharge found to be major indication of infection with frequency of 68 patients, swelling and redness being second major indication in 21 patients and abdominal pain in 11 patients. (Table.2)

In 76% cases, it took 60min for surgery and 45min in 24% cases. (fig. 8).

Infections were mostly caused by E. coli covering 45% and staphylococcus with 40% and 15% were polymicrobial. (Fig. 9).

Antibiotics used to treat infection include ceftriaxone plus gentamycin in 29% patients, Augmentin in 28% patients, Tanzo in 25% and amikacin plus ceftriaxone in 29% patients. (Table.3)

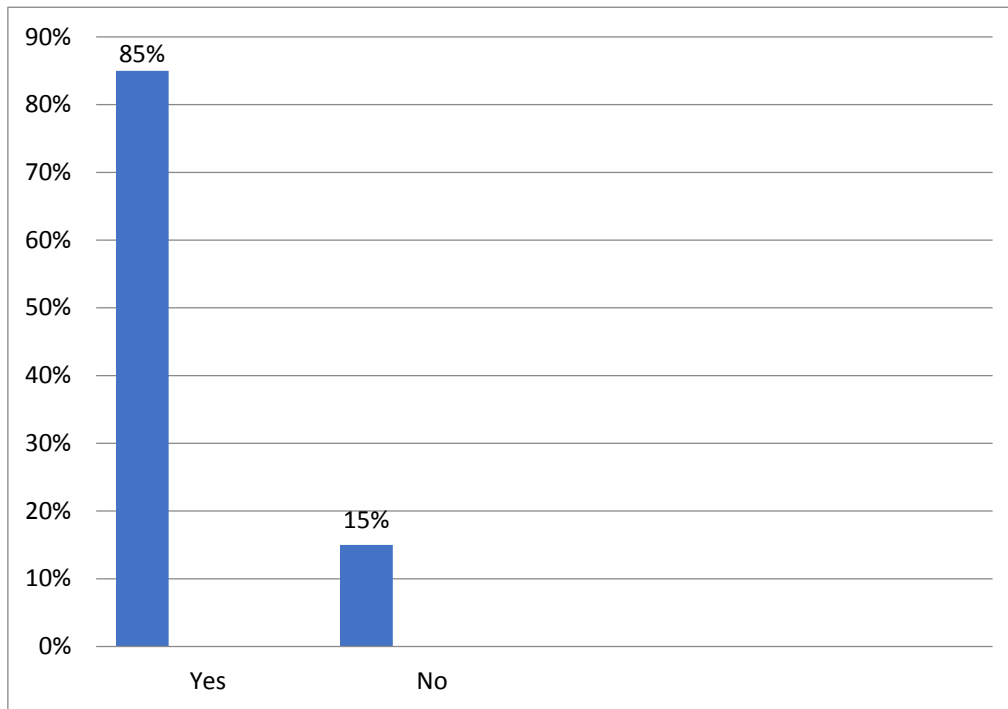


Figure: Counselling regarding risks and benefits of caesarean section.

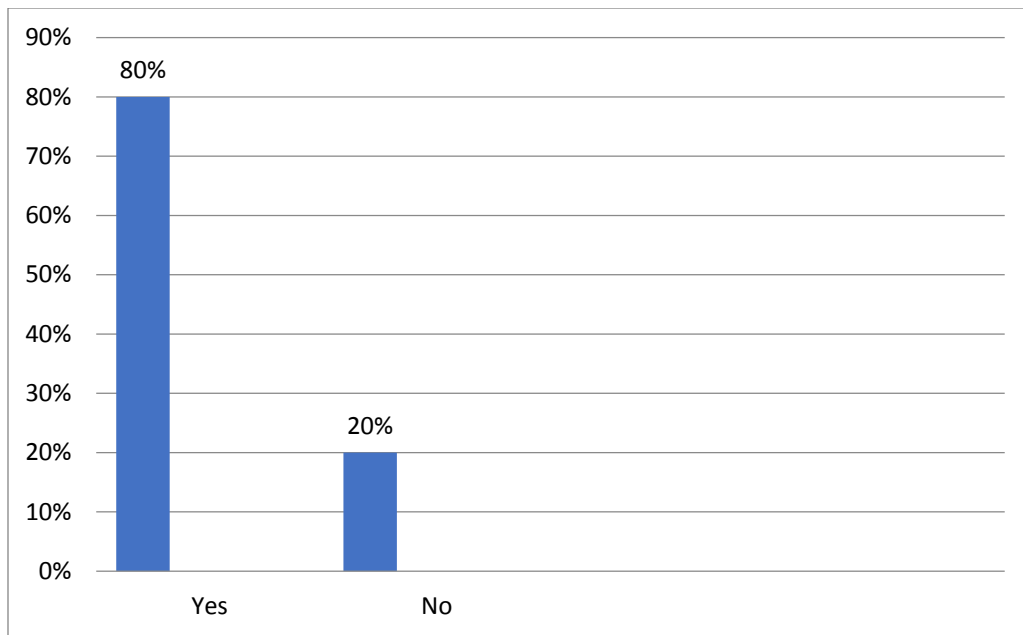


Figure 2: Guidance for the removal of pubic hair.

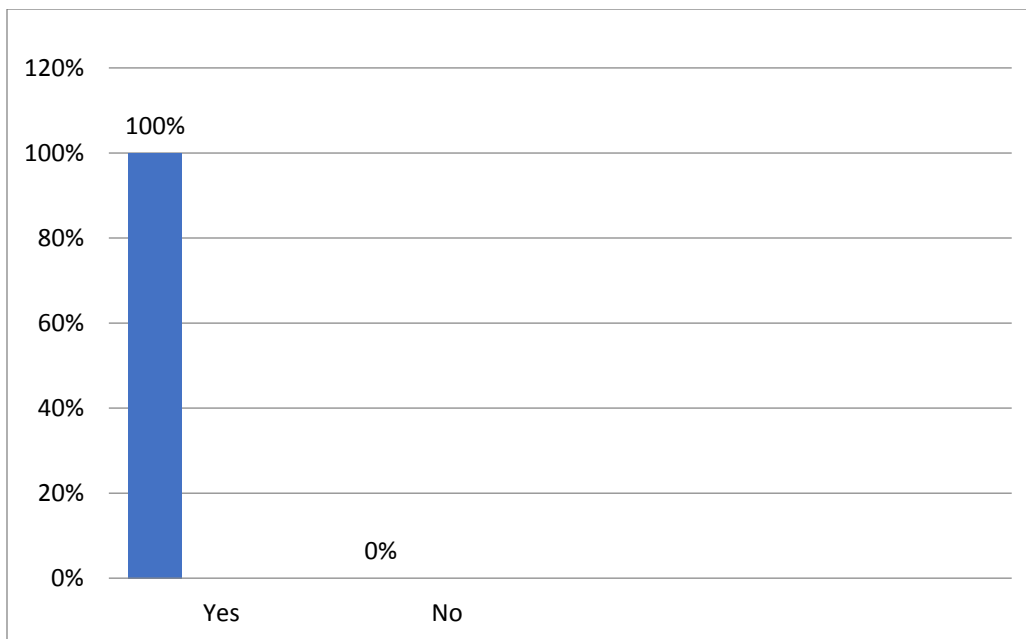


Figure 3: Prophylactic administration of antibiotics.

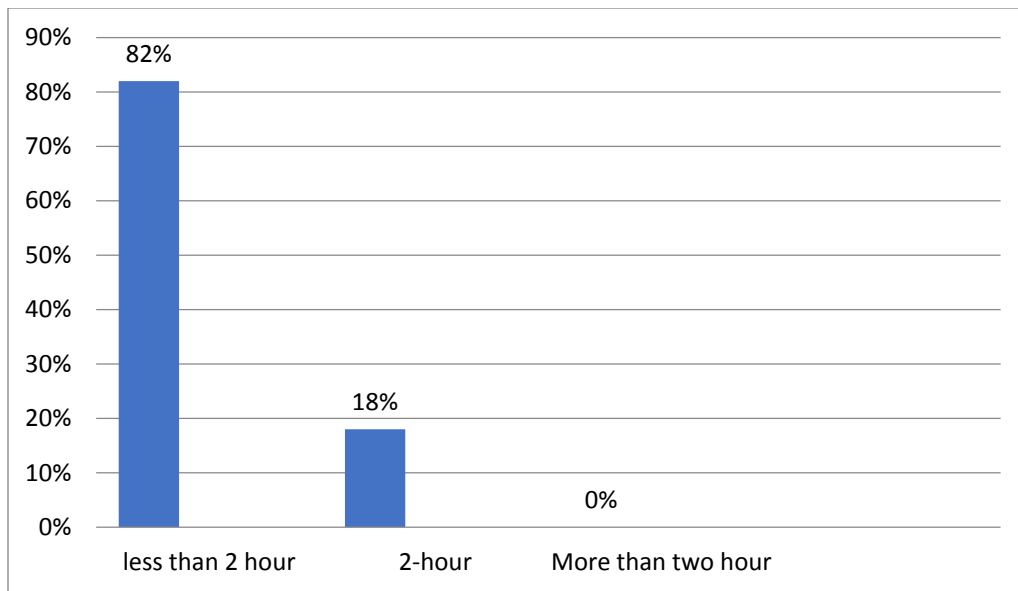


Figure 4: Time of active labour

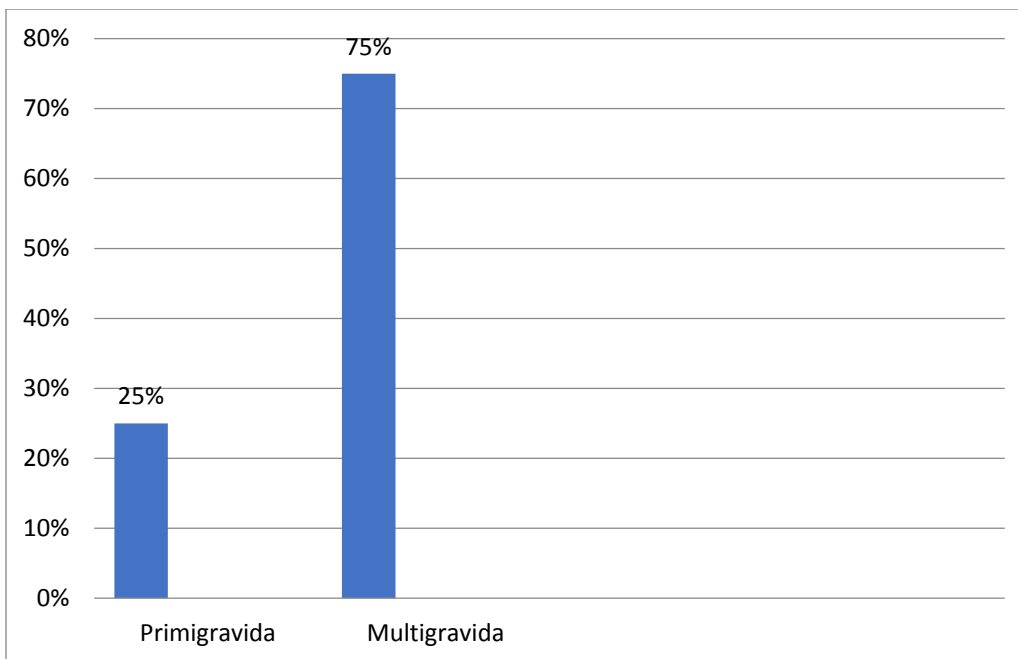


Figure 5: Number of pregnancies

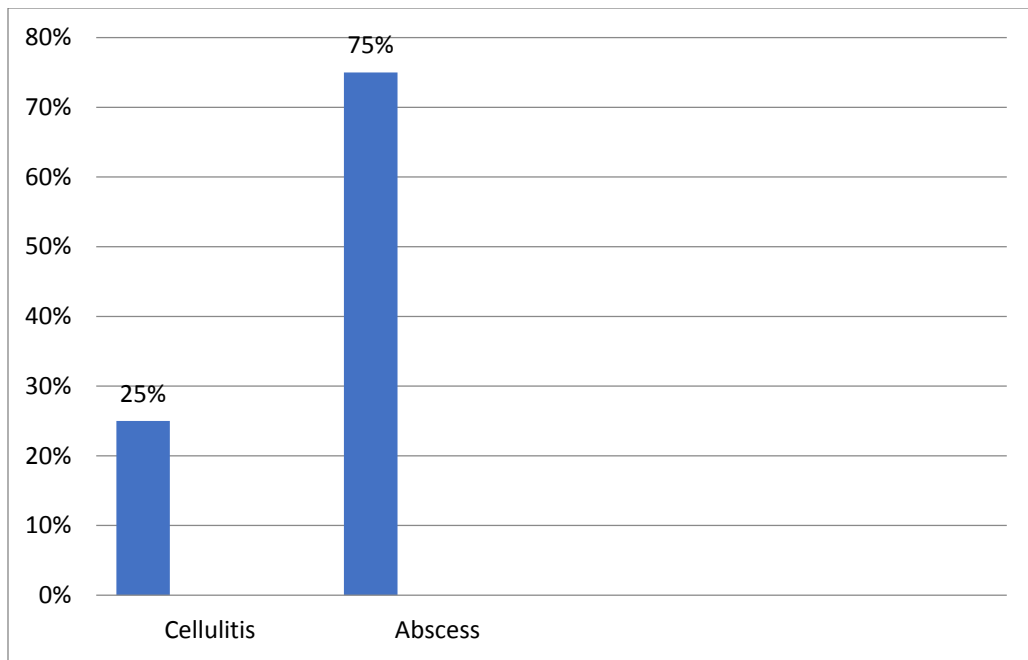


Figure 6: Type of complication.

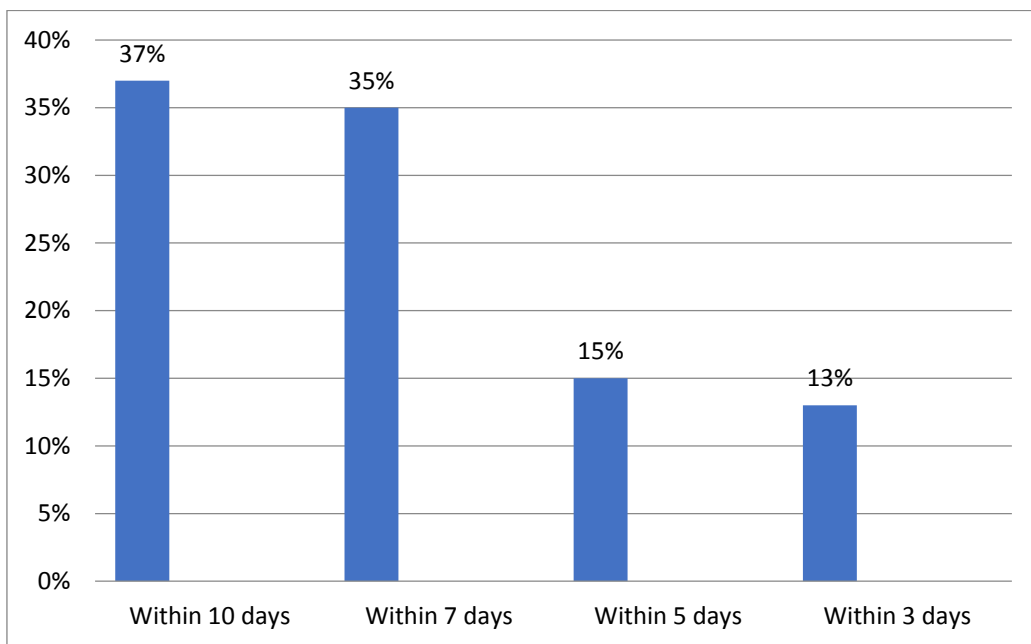


Figure 7: occurrence of infection

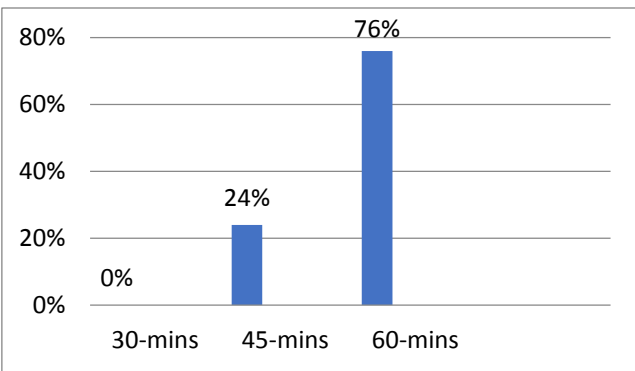


Figure 8: duration of surgery

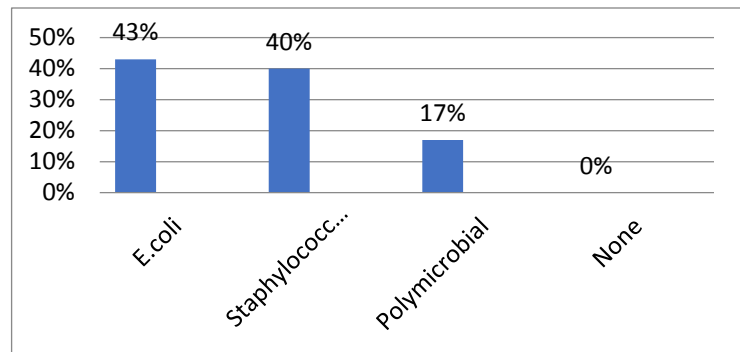


Figure9: Causative agent

Reason of caesarian section	Frequency (n)
Foetal distress	55%
Failure to progress in labor	26%
Breech position of fetus	17%
Cord prolaps	2%

Table 1: Reason for C-section

Indication of infection	Frequency
Pus discharge	68%
Swelling and redness	21%
Abdominal pain	11%

Table 2: Indication of infection

Antibiotics used	Percentage
Ceftriaxone+ gentamycin	29
Augmentin	28
Tanzo	25
Amikacin+ ceftriaxon	18

Table 3: Antibiotics used in treatment of infection

IV. DISCUSSION

The study was purposed to determine the conduct of ethical practices in C-section and prevalence of post-caesarian infection in public and private sector in Lahore. C-section is performed due to some clinical indications as well as just per wish of mother. The study showed that all cases of caesarian section were performed due to clinical situations and none was an elective caesarian due to believe that it is not a normal process and cause more complications. This contrasts with a study in Brazil where mostly women prefer caesarian delivery and go for elective caesarian. [9]. In another study in Germany in 2012 less than 10% cases of caesarian involve medical conditions. [10]. A study in Lady Reading hospital Peshawar showed 78% cases due to medical cause and rest were elective. [17]

Beside women desire to deliver bay by caesarian, many medical situations lead to C-section. These conditions include foetal distress, failure to progress in labor, cord prolapse, placental disproportion. The survey indicated C-section largely due to fetus distress with 55%, failure in labor (26%), breech position (17%), cord prolapse being the least (2%).the results are somewhat closer to previously conducted study in New York city by Emma Barber on contributing factors to rising caesarian delivery which showed that C-section was performed mostly due to fetus distress in 32% cases and secondly due to labor arrest problems in 18% and other problems covering 1%. [11]. This study doesn't match the figure stated in a study in Peshawar, Pakistan indication of C-section were foetal distress (17.1%), failure to progress (16.1%), breech position (9.8%). [17]. A study in a private teaching hospital reported the similar values as that of Peshawar. [18]

In our study women with multigravida pregnancies were more susceptible to caesarian section with 75% cases than primigravida with 25%. This result showed a remarkable deviation from previous study which showed 16% cases of multigravida. [11]. The study also differs from another study in Peshawar, Pakistan in 2016 where the incident of multigravida was 49.2% and primigravida was 40.7%. [16]

C-section is associated with complications such as surgical site infection or endometritis. In this study, all patients that is 100% patients suffered from SSI and none from endometritis among them only 6% in private hospitals. This is inconsistent with a study conducted in U.S on surgical site infection in caesarian delivery which reflected that incident of SSI were 2-7% of sample of 35% cases of post-caesarian complications and that of endometritis were 2-16%. [12]

Surgical site infections are of two type that are cellulites and abscess and caused by various microorganisms like E. coli, staphylococcus aureus, polymicrobial infections. According to this study E. coli was leading cause of infection with 43%, staphylococcal with 40% and 17% were polymicrobial infections. These values are in part closer to a previous study in Oman which indicated values as being E. coli (18.95%), S. aureuse (31.27%) and polymicrobial (19.9%). This difference indicates that in Pakistan, E. coli infections are more prevalent as compared to that in another region i.e. Oman. [13]

Another study in Thailand showed prevalent causative agent as being E. coli 15.3%, S.aureus 8.5% and P. aeruginosa 6.8%. Thus, the ratio of these causative agents in Pakistan is higher than that in Thailand too. [14]

Surgical site infections are detected mostly within 24 hours but in this study, all the infections occurred after discharge from hospital, 37% within 10 days, 35% within 7days, 15% within 5days and 13% within 3days. In previous study in Thailand only 27.6% cases of SSI were detected after discharge. [14]

In this study, all the patients i.e. 100% were administered preoperative prophylactic antibiotics mostly cefazolin or azythromycin in resistant patients while in a study in Thailand in 2004 antibiotic prophylaxis was given as 51.6% preoperative, 24.3% intraoperative and 24.1% postoperative, an entirely different trend than that in Lahore, Pakistan where antibiotics are given preoperatively. [14]

Sullivan studied the effect of first generation cephalosporin on post-caesarean infection and proposed that preoperative administration of cefazolin reduce the infectious morbidity. [19]

By the end of study, the public hospital switched to the use of alpha-guard as disinfectant for equipment, tubing, clothing and the frequency of post-caesarean infections decreased from 78.33% (n=55,39 patients in public hospitals in 60days) to 40%. Total prevalence of surgical site infection being 55.55% including both public and private sector. (n1=55,39 in public and n2=6 cases in private hospital).

Post caesarian infections are treated according to the causative agent, local resistance, and local prescribing trend. In this research study antibiotics were used alone as well as in combination. For S.aureus infections mostly Augmentin was used and to treat infection caused by E.coli third generation antibiotics i.e. ceftriaxone alone or in combination with gentamycin or amikacin was used. Similarly, in case of polymicrobial infection combination of cephalosporin and aminoglycosides was used. Ceftriaxone + gentamycin was being used in 29%, Augmentin in 28%, Tanzo in 25%, and ceftriaxone+amikacin in 18% cases.

In another study in Nizawa hospital in Oman antibiotic were prescribed as penicillines 14.21%, cephalosporins 22.74%, gentamycin 24.64% which are different from that in Lahore.

However, literature lack the proof about the contribution of means of removal of pubic hair in post-caesarian infections but some guidelines advise the avoidance of razor for hair removal and advocate use of clipper as by WHO. [20]. 20% women were given instruction about removal of pubic hair in our study and none of the previous study reported such parameter.

According to guidelines of National institute of health and care excellence, women must be provided with complete information about risk and benefits and procedure of surgery and instruction about personal hygiene. [15]. In our study 100% patients were counselled about risk and benefits and personal hygiene to avoid complication.

Longer time of surgery is a contributing factor in C-section and in this study 76% C-section were performed in 60min and 24% in 45min. This is supported by a retrospective study conducted in University of Pittsburgh in 2011 where mean operative time found to be 51min. [21]

V. CONCLUSION

There is no legislation regarding ethical practices in C-section and for elective C-section, however, C-section is performed some clinical situation none was elective. Standard guidelines for ethical practice and to prevent post-caesarean infections were followed including provision of information to mother about risk and benefits and hygiene and prophylactic use of proper antibiotics. Despite prophylactic use of antibiotics, use of suture and skin cleansing, incident of surgical site very high and was more prevalent in public hospitals. Cases of infection were reported late after discharge from hospital. Causative agents found to be *E. coli*, *S. aureus* and to some extent polymicrobial. These infections were being treated with third generation antibiotics, Augmentin and aminoglycosides. Wound infections were somewhat due to unclean environment of operation theatre and inadequately cleaned equipment. Cases of wound infections reduced after the use of alpha guard as disinfectant in operation theatre.

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