

**CHLORHEXIDINE -ALCOHOL VERSUS POVIDONE -IODINE +
ALCOHOL AS PRE-OPERATIVE ANTISEPTIC FOR
PREVENTION OF SURGICAL SITE INFECTION IN CESAREAN
SECTION : A RANDOMISED CONTROL TRIAL**

By

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Dissertation submitted to the
B.L.D.E. (DEEMED TO BE UNIVERSITY)
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In Partial fulfilment of requirements for the degree of
MASTER OF SURGERY
In
OBSTETRICS AND GYNAECOLOGY
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ABBREVIATIONS

CS	Casearean Section
SSI	Surgical Site Infection
LSCS	Lower Segement Casearean Section
CDC	Centres for Disease Control and Prevention
PI	Povidoneiodine
CCT	Controlled Cord Traction
MRP	Manual Removal of Placenta
LUS	Lower Uterine Segment
MRSA	Methicillin-Resistant Staphylococcus Aureus
ASC	Active Surveillance Culture
ACOG	American College of Obstetricians and Gynecologists
PPH	Post partum haemorrhage

ABSTRACT

Introduction :

Caesarean Section (CS) is the most common procedure performed and its rate is on the rise. Surgical site infection (SSI) is a dreaded post-operative complication. The most commonest disinfectants studied are PI and chlorhexidine alcohol(3). So we want to know the efficacy of chlorhexidine-based antiseptic protocol versus PI protocol as a pre-operative skin preparation in reducing SSI for patients undergoing CS

Aim and objectives of the study : Primary objective was to establish the efficacy of chlorhexidine-based antiseptic protocol versus povidone-iodine protocol in reducing SSI for patients undergoing caesarean deliveries. and the organism growth on swabs taken

Materials and methods : This is a randomized prospective study conducted from April 2017 to September 2017 at a tertiary care center in India. Women who underwent caesarean sections were allocated into either group. Enrolled patients were randomly assigned to have the surgical site painted with chlorhexidine-alcohol preparation or painted with a solution of 10% povidone-iodine and then with surgical spirit. The outcomes were noted. The study lasted for 18 months with 208 participants. The surgical sites will be inspected on post-op day 2 and cleaned with surgical spirit and will be covered with sterile dressing sterizone (transparent filament with a silver lining in the center). The wound was inspected on day 5/day 7, or at the time of discharge, whichever was later. In case of wound discharge, the wound swabs were taken and sent for culture and sensitivity. Statistical analysis was performed using JMP-SAS Software, with results presented as mean $\pm$ S.D., counts and percentages, and diagrams. Comparisons

were made using independent t-tests, Mann-Whitney U tests, Chi- square test/Fisher's Exact tests.

Results : A total of 208 subjects (104 in the chlorhexidine group and 104 in the iodine group) qualified for the study.

The number of surgical-site infection was significantly lower in the chlorhexidine group than in the iodine group (2.90% vs. 11.50%; $P=0.02$). Chlorhexidine–alcohol was significantly more protective than PI against both superficial infections (1.00% vs. 8.70%, $P=0.018$) and deep infections (1.90% vs. 2.90%, $P=0.018$). There was no significant differences in the frequency of isolating organisms. Staphylococcus aureus was the commonest bacteria isolated.

Conclusion - This study highlighted that Chlorhexidine-alcohol provided superior skin antisepsis in comparison to PI.

Keywords: Chlorhexidine, Surgical-site infection ,Povidone iodine

INTRODUCTION

Caesarean Section (CS) is the most common procedure performed and its rate is on the rise. Globally the average rate of CS is around 18.6%. (1) Surgical site infection (SSI) is a dreaded post-operative complication (2). Among hospitalized patients, SSI is the second most common cause of nosocomial infections. It covers about 14–16% of all nosocomial infections.

Post-CS complications are due to infection in 7-20% of the patients. The development of SSI after CS results in increase duration of hospital stay due to infection, increased patient morbidity, re-admission, use of healthcare resources, hospital costs. It in turn causes emotional, psychological, and financial problems on the mother and other family members or relatives. This impairs mother-child bonding and lactation. It causes significant morbidity and mortality in these patients resulting in increased duration of hospitalization and cost of healthcare. There are many factors in the patient's profile that vary the rate of infection in patients like low socioeconomic status, maternal medical disorders, immunosuppression, steroids, blood loss, body mass index, duration of surgery, duration of labor, rupture of membranes, absence of prophylactic antibiotics and emergency (3)The extrinsic factors contributing to SSI like patient's skin preparation, hand scrubbing techniques, the environment of the operative room, autoclaving of the instruments and other hospital items which are used in the operation room. The commonest cause of SSI is the contamination of the surgical incision by the patient's own body bacteria(4).

REVIEW OF LITERATURE

Considering the fact that CS is the most common major obstetric surgery carried out on women worldwide, everything should be done to reduce the attendant morbidity and mortality. Optimizing the skin with asepsis preoperatively helps in decreasing post-operative complications(1). Choosing the correct antiseptic for the preparation of the skin is one of the crucial factors in the prevention of SSI. There are many disinfectants available commercially. The most commonest disinfectants studied are PI and chlorhexidine alcohol(3). So we want to know the efficacy of chlorhexidine-based antiseptic protocol versus PI protocol as a pre-operative skin preparation in reducing SSI for patients undergoing CS.

SSI is defined by the Centres for Disease Control and Prevention (CDC) as an infection that develops in the area of the body where the surgery was performed within 30 days of the procedure. It separates SSIs into two categories: organ/space SSI and incisional SSI. There are two types of incisional SSI: superficial SSI, which involves the skin and subcutaneous tissue, and deep SSI, which involves layers of muscle and fascia.(5) *Staphylococcus aureus*, which accounts for 15% to 20% of infections, is the most frequently isolated bacterium in SSI. Other organisms frequently recovered from SSIs include *Escherichia coli*, *Enterococcus* species, coagulase negative staphylococci, and gramme negative bacilli.(6) In connection with CS, SSI has a unique microbiological reservoir of infections that are derived from both the skin and the vagina.(7). As a result, it is typically a polymicrobial infection that includes both anaerobic and aerobic bacteria.(8) Developing focused prevention efforts to lower the risk and cure the infection requires knowledge of the pathogens and risk factors linked to SSI.

If suitable antiseptics are available, topical antibiotic usage ought to be discouraged. As an alternative to antibiotics for topical wound care, antiseptics are more likely to be microbicidal and exhibit a wider range of antimicrobial activity. Additionally, because they target distinct facets of microbial cell biology, they also lessen the possibility of resistance developing in comparison to the majority of antibiotics.(9)

Chlorhexidine

Chlorhexidine is a common topical antiseptic and a broad-spectrum antibacterial. It works well against a variety of microorganisms, such as viruses, yeasts, and both gram-positive and gram-negative bacteria. It is among the most widely used antiseptics for skin and mucous membranes nowadays. With two 4-chlorophenyl rings and two biguanide groups connected by a central hexamethylene chain, the molecule is a cationic bis-guanide. It has a concentration-dependent antimicrobial effect, inhibiting bacterial growth at lower concentrations (0.02%–0.06%) and killing bacteria at higher concentrations (>0.12%) (bactericidal impact)..

Chlorhexidine salts decompose and liberate the positively charged chlorhexidine cation at physiological pH. The structure of the negatively charged bacterial cell walls is disrupted when this cation attaches to them. At lower concentrations, this leads to the inhibition of bacterial growth, whereas at higher concentrations, it causes membrane damage, resulting in bacterial cell death.

A randomized controlled trial conducted at university of south tampa for nearly four years compared chlorhexidine-alcohol to iodine-alcohol for preoperative skin antisepsis in CS deliveries with a total of 1147 patients found that 4.0% of

patients in the chlorhexidine-alcohol group developed surgical-site infections within 30 days post-surgery, compared to 7.3% in the iodine-alcohol group. This suggests that chlorhexidine-alcohol is more effective in reducing surgical-site infections after CS.(11)



Figure 1: CHLORHEXIDINE

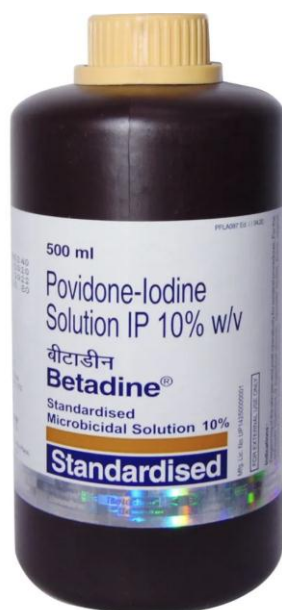


Figure 2:Povidone

Povidoneiodine(PI) was first discovered by Bernard Courtois in 1811, and its antibacterial properties have been utilized for over 150 years to treat or prevent infections in wounds. A preparation of iodide was first used for wound care in 1839. During Napoleon's war in Egypt and the American Civil War, iodine-rich natural sources like oysters and seaweed extracts were used. But until the 1950s, their use declined because tinctures made of alcoholic or aqueous iodine solutions were frequently linked to skin irritation and discolouration. Polyvinylpyrrolidone-iodine (also known as PVP-I or PI) was introduced at that time, providing a water-soluble substitute made by mixing polyvinylpyrrolidone with molecular iodine. PI functions as a reservoir of "free" active iodine because it is an iodophor, a compound made up of iodine and a solubilising carrier. Hydrogen bonds between the two pyrrole units in this complex bind iodine to both polyvinylpyrrolidone and iodide, maintaining a dynamic equilibrium. The free iodine is the bactericidal component, and its concentration is influenced by the concentration of the PI solution.

The release of free iodine follows a bell-shaped curve: at a 10% solution, only a small amount of free iodine (about 1 part per million) is present. The amount of

free iodine in the solution rises with dilution, reaching a peak at about 0.1% solution (1:100 dilution), and then falling with additional dilution. Studies conducted in vitro that show the counterintuitive impact of increasing antibacterial activity at moderate dilutions are consistent with this pattern. PI comes in a number of antiseptic formulations, but the most popular ones are the surgical scrub (7.5%) made with a non-ionic surfactant to produce lather, the alcoholic solution (10% PVP-I) for rapid drying. With a free iodine concentration of roughly 1 ppm, the 10% aqueous PI is composed of 90% water, 8.5% povidone, and 1% accessible iodine and iodide. 0.75% of the available iodine is provided by the 7.5% PI.

90% water, 8.5% povidone, and 1% povidone make up the 10% aqueous PI solution. PI is also offered as an ointment (10% PVP-I) and a dry powder spray (2.5% PVP-I).(12)

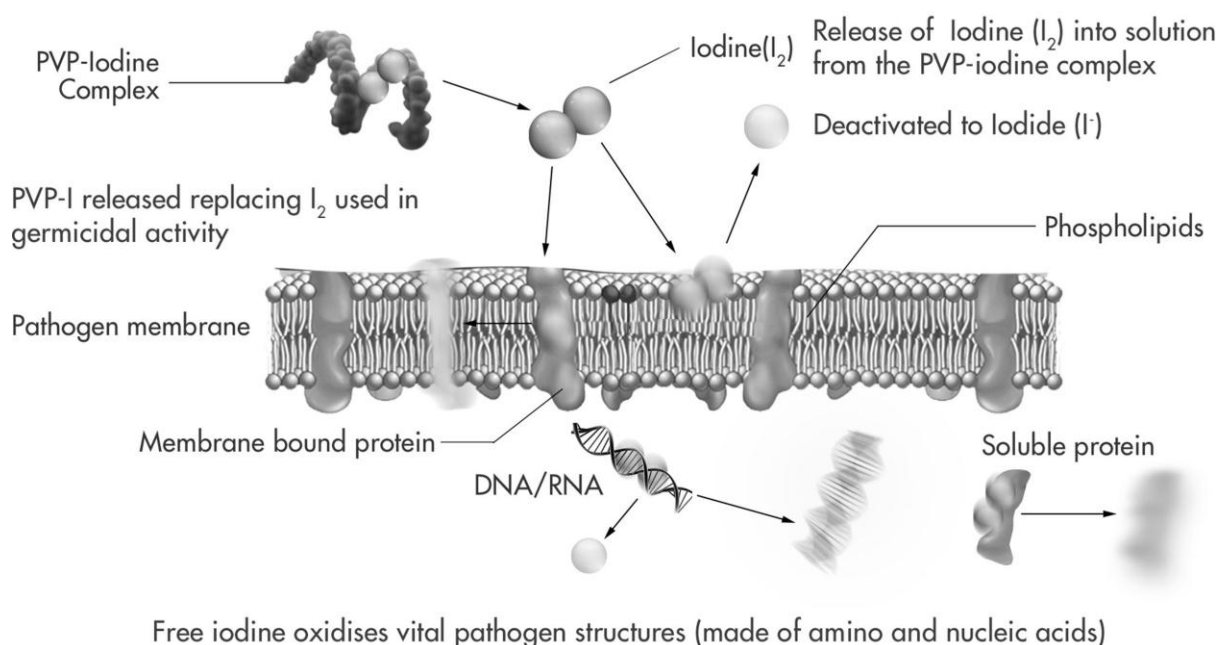


Fig.3 mechanism of action of PI.

The PVP-I complex releases the active ingredient, non-PVP-bound (or "free") iodine, into the solution. PVP does not have microbicidal qualities of its own; instead, it affects target cell membranes by releasing free iodine. The basic process by which amino acids and nucleic acids oxidise in living tissues is facilitated by this free iodine. This fundamental mechanism of action results in potent microbicidal effects demonstrated by various modes of action, which involve the disruption of microbial metabolic pathways and the destabilization of cell membrane structural components, leading to irreversible harm to the pathogen. The free iodine consumed is subsequently substituted by iodine bound to PVP. The level of free iodine is the key factor influencing the microbicidal effect of PVP-I. Exposure to PVP-I results in the destruction of cytosolic and nuclear components in bacteria and damages the cell wall in fungi. *In vitro*, 0.05 % and 0.1 % PVP-I were microbicidal against methicillin-sensitive *S. aureus* (MSSA) and methicillin-resistant *Staphylococcus aureus* (MRSA) within 20 seconds (13)

Additionally, PI works well against amoebic cysts, bacteria, spores, protozoa, fungi, and a number of viruses. Additionally, MRSA and other antibiotic-resistant bacterial strains that frequently cause nosocomial infections are known to be killed by PI.

The effectiveness of preoperative skin antisepsis with PI as a workable clinical alternative was validated by a recent Cochrane review and a large American trial involving 7669 clean-contaminated surgery patients. Although adding alcohol to PI seems to have little effect, one study involving 200 healthy volunteers found that using 70% isopropyl alcohol either before or after 10% PI was more effective than disinfecting with only one agent at lowering the number of bacteria on the skin. For pre-operative use, the most recent WHO recommendation favours

alcoholic chlorhexidine solution over povidone iodine. In contrast to recent Cochrane Reviews, certain current studies may have been excluded because of a cut-off date, which resulted in a recommendation. As well as surgical site preparation, intra-operative flushing with PI has been shown to reduce infection rates(14).

The efficiency of various antiseptics for preoperative skin preparation has not been directly compared in many research. 10% PVP-I and 4% CHX were tested in one randomised controlled experiment for skin preparation prior to vaginal surgery. Before, 30 minutes after, and then every hour during the procedure, cultures were obtained from the vaginal field. Cultures from the PVP-I group were more than six times more likely to be infected at the 30-minute point, indicating that CHX was noticeably more effective. Later time points, however, showed no discernible changes. (15) According to other research, CHX might be a better skin disinfectant than PVP-I, lowering the number of skin bacterial colonies at the site of the surgical incision. However, rather of using prior skin painting, these investigations used preoperative showering.(16) The United Kingdom National Collaborating System and the United States CDC recommended that surgical incisions be bandaged for 48 hours following surgery.(17)

Antibiotic prophylaxis is very much suggested for women undergoing CS until they receive antibiotics with coverage of broad-spectrum. It prevents infection at site of surgery by reducing bacterial contamination during surgery.(18)

A first-generation cephalosporin, a narrow-spectrum antibiotic, should be used routinely before a CS, according to current guidelines for antibiotic prophylaxis.(19)The first-generation cephalosporins include extended-spectrum antibiotics. The ACOG approved the inclusion of azithromycin in the standard

antibiotic treatment for women on whom non-elective CS are done in September 2018.(20) Various randomized control trials conducted at a single site have shown that the administration of azithromycin-based extended-spectrum prophylaxis, which involves a one dose of Tab azithromycin in addition to cephalosporin prophylaxis, leading to a reduced likelihood of infection after CS than the use of standard prophylaxis alone. Effectiveness of this prophylactic has been attributed to its ability to provide coverage against ureaplasma species, often linked to infections after CS.(21)

Compared to other specialities, post-operative infections have been more common in obstetrics and gynaecological settings. Compared to vaginal delivery, women receiving CS are five to twenty times more likely to become infected.(22) A one-year prospective study at an Andhra Pradesh medical college revealed that ceftriaxone is a more effective prophylactic antibiotic than amoxicillin at preventing post-operative infections in patients undergoing lower segment CS (elective and emergency).(23)

The risk of SSI after CS treated to single dose antibiotic prophylaxis was low, according to a prospective hospital-based study carried out in Telangana, India over a two-year period in which women who had CS were followed up with for 30 days after birth.(24)

Understanding the polymicrobial nature of infections following CS is essential for effective management and prevention strategies. By recognizing the common pathogens involved and implementing evidence-based practices, healthcare providers can significantly reduce the incidence of surgical site infections

Wound is the disruption of normal function and structure of the skin with its associated soft tissue structures.

Types of wound

1. Acute wound - abrasion, crush injury, surgery
2. Chronic wound – peripheral artery disease, occlusion

Clean — an incision in which no inflammation is encountered in a surgical procedure, without a break in sterile technique, and during which the respiratory, alimentary and genitourinary tracts are not entered.

An incision made under controlled circumstances that enters the pulmonary, alimentary, or genitourinary tract without any contamination is said to be clean-contaminated.

An incision made during a surgery where there is a significant breach in sterile technique, a significant gastrointestinal tract spill, or an incision where there is acute, non-purulent inflammation is considered contaminated. This also includes open traumatic wounds that are older than 12 to 24 hours. An incision made during an operation where the viscera are perforated or when there is acute inflammation with pus during the procedure (such as emergency surgery for faecal peritonitis), or for traumatic wounds where treatment is postponed and there is faecal contamination or devitalised tissue present, is considered dirty or infected (25)

PHASES OF WOUND HEALING

HAEMOSTASIS : Haemostasis is caused by the constricting of small vessels around the incision. Platelets clump together in injured arteries activating the clotting cascade and releasing essential growth factors and cytokines for wound healing. The matrix stabilizes the wound and serves as the foundation for wound healing.(26)

Inflammation : the macrophages generated when mononuclear leukocytes clump together. Several events control the maturation of blood derived monocytes into macrophages, including the production of vimentin a structural filament protein involved in wound healing, mast cells release histamine and other mediators of vasodilation and cellular migration as they degranulate. Small arteries become permeable to molecular and cellular mediators of inflammatory changes when stromal mast cells release vasoactive chemicals. Edema or swelling is the clinical manifestation of the resultant buildup of plasma and cellular components. Chemotaxis cause the migration and concentration of polymorphonuclear leukocytes which use lysosomal enzymes to digest pathogens, foreign debris and necrotic tissue.(27)

EPITHELIALIZATION : inside a clot basic cell growth and epithelial cell migration can be seen in the fibrin bridgework, individual cells continue to proliferate until they are surrounded by cells of same type, epithelial cells move downhill to meet deep in the dermis in a clean surgical wound. When this layer is renewed migration, ceases. Within 48hours after surgery, the epithelialization process is complete. The epithelial surface layer acts as a barrier against bacteria and other foreign things but is relatively thin, easily damaged and has little tensile strength.(28)

FIBROPLASIA – fibroblasts proliferate ground substance accumulates and collagen is produced. Fibroblasts are produced from the local mesenchymal and appear in the wound within 24 hours with majority of them appearing by the tenth postoperative day. The ground material is formed when fibroblasts connect to the fibrin matrix of the clot, multiply and create glycoprotein and mucopolysaccharides. Myofibroblasts which have features of smooth muscle cells with the ability to contract are produced by fibroblast and are found in the wound on fifth day. the ability to pull the wound's margin together is determined by the tissue characteristics. Collagen, the body's principal structural protein, is also produced by fibroblasts. On the second postoperative day, collagen production begins. Angiogenesis is stimulated by the growing collagen matrix. Granulation tissue is made up of a combination of collagen synthesis and capillary development. (29)

MATURATION Collagen crosslinking, collagen remodelling wound contraction and depigmentation are all to be considered. The amount of collagen present in a wound is directly related to its tensile strength. Type I and III collagen are mostly found in the skin and aponeurotic layers. Tensile strength is determined by the covalent cross links. By six weeks after surgery the tissue restores approximately 80% of the strength. After 180 days the morphology returns to normal.(30)

IMPAIRED WOUND HEALING

The risk factors associated with impaired wound healing and wound complications are

- Infection
- Smoking
- Ageing
- Malnutrition
- Immobilization
- Diabetes
- Vascular diseases
- Immunosuppressive agents
- Others

SUPERFICIAL SSI

Must meet the following criteria:

Date of event occurs within 30 days following the NHSN operative procedure (where day 1 = the procedure date)

AND

involves only skin and subcutaneous tissue of the incision

AND

patient has at least one of the following:

- a. purulent drainage from the superficial incision.
 - b. organism(s) identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing [ASC/AST])
 - c. a superficial incision that is deliberately opened or re-accessed by a surgeon, physician or physician designee and culture or non-culture based testing of the superficial incision or subcutaneous tissue is not performed
- AND
- d. patient has at least one of the following signs or symptoms: localized pain or tenderness; localized swelling; erythema; or heat
 - d. diagnosis of a superficial incisional SSI by a physician* or physician designee

Incisional superficial SSI

Two distinct categories of superficial incisional SSIs exist:

1. Superficial incisional SSI is called Superficial Incisional Primary (SIP). found in a patient's primary incision following surgery involving one or more incisions (e.g., CS incision or chest incision for CBGB)
2. Superficial Incisional Secondary (SIS): an SSI that is detected in the secondary incision of a patient who has had surgery involving multiple incisions

DEEP SSI

Deep incisional SSI

Deep incisional SSIs come in two distinct varieties:

1. Deep Incisional Primary (DIP): a deep incisional SSI found in a patient's primary incision following surgery with one or additional incisions (such as the

chest or C-incision for CBGB)

2. Deep Incisional Secondary (DIS): this type of SSI is found in the secondary

Date of event occurs within 30 or 90 days following the NHSN operative procedure (where day 1 = the procedure date)

AND

involves deep soft tissues of the incision (for example, fascial and muscle layers)

AND

patient has at least one of the following:

a. purulent drainage from the deep incision

b. a deep incision that is deliberately opened*

, re-accessed, or aspirated

by a surgeon, physician or physician designee or spontaneously dehisces

AND

organism(s) identified from the deep soft tissues of the incision by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing [ASC/AST]) or culture or non-culture based microbiologic testing method is not performed. A culture or non-culture based test from the deep soft tissues of the incision that has a negative finding does not meet this criterion.

AND

patient has at least one of the following signs or symptoms: fever (>38°C); localized pain or tenderness

c. an abscess or other evidence of infection involving the deep incision detected on gross anatomical exam, histopathologic exam, or imaging test.

incision in patients who have undergone surgery involving several incisions.

FIGURE 4 : THE SOUTHAAMPTON SCORING:

Must meet the following criteria:

Date of event occurs within 30 or 90 days following the NHSN operative procedure (where day 1 = the procedure date)

AND

involves the organ/space tissues (deeper than the fascia/muscle)

AND

patient has at least one of the following:

- a. purulent drainage from a drain placed into the organ/space (for example, closed suction drainage system, open drain, T-tube drain, CT-guided drainage)
- b. organism(s) identified from fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not ASC)
- c. an abscess or other evidence of infection involving the organ/space detected on:
 - gross anatomical exam or
 - histopathologic exam or
 - imaging test evidence definitive or equivocal for infection

Examples of gross anatomic evidence of organ/space infection:

- An intraabdominal abscess will require an invasive procedure to actually visualize the abscess.
- Visualization of pus or purulent drainage (includes from a drain).
- Abdominal pain or tenderness post CS (CSEC) or hysterectomy is sufficient gross anatomic evidence of infection without an invasive procedure

Grade	Appearance
0	Normal healing
I	Normal healing with mild bruising or erythema
	A—some bruising
	B—considerable bruising
	C—mild erythema
II	Erythema plus other signs of inflammation
	A—at one point
	B—around sutures
	C—along wound
	D—around wound
III	Clear or haemoserous discharge
	A—at one point only (<2 cm)
	B—along wound (>2 cm)
	C—large volume
	D—prolonged (>3 days)
IV	Pus/purulent discharge
	A—at one point only (<2 cm)
	B—along wound (>2 cm)
V	Deep or severe wound infection with or without tissue breakdown;

METHODOLOGY

Study setting – Department of OBG, BLDE (DU) Shri B.M. Patil Medical College Hospital and Research Centre, Vijayapura

Study design – randomised control study

Study period – total period of 18months

SOURCE OF DATA - All the Obstetric patients who are admitted to the labor room at Department of Obstetrics and Gynaecology, BLDE (DU) Shri B.M. Patil Medical College Hospital and Research Centre, Vijayapura, were included in the study after taking informed and written consent.

PLACE: Department of Obstetrics and Gynaecology

INCLUSION CRITERIA

- Women aged above 18 years
- Women who undergo CS

EXCLUSION CRITERIA :

- Antenatal women with PROM
- Overt DM & GDM
- Severe anemia < 8g/dl
- Women with any skin lesions over the abdomen
- Any concurrent systemic infection (UTI, Temp >98.5F)
- Prolonged labour
- History of allergy to chlorhexidine alcohol or iodine
- Evidence of infection at or adjacent to the operative site.
- Immunocompromised patients

METHOD OF COLLECTION OF DATA :

All patients were explained about the nature of the study, and written and informed consent in accordance with the declaration of Helsinki was obtained. The patients was preoperatively evaluated with history, general physical and systemic examination and complete hemogram & relevant biochemical

parameters. The type cs (emergency or elective), indication for CS, duration of surgery, mode of delivery of placenta and examination till the time of suture removal or discharge, were recorded. Patients were examined for signs of SSI until discharge from the hospital. As per routine protocol, the dressing was done after 48 h of operation.. For patients developing SSI, a wound swab was taken and sent for culture & sensitivity test, and appropriate wound care will be given.

Sample size calculation Sample size: 208 with Anticipated Proportion of E.coli culture organisms in Chlorhexidine 42.1 % and in PI 26.8% (2) resp. The study required a sample size of 104 per group. (i.e., a total sample size of 208 assuming equal group sizes), to achieve a power of 80% for detecting the difference in proportions between the two groups at a two-sided p-value of 0.05. Formula used
$$n = \frac{(z_{\alpha} + z_{\beta})^2 p^* q}{MD^2}$$

Where Z= Z statistic at a level of significance

MD= Anticipated difference between two proportions

P=Common Proportion q= 100-p

All the pregnant women admitted in the labor room of the Department of Obstetrics and Gynaecology at B.L.D.E (DEEMED UNIVERSITY) SHRI B.M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE who undergo CS were included in the study after obtaining written & informed consent. The patients were randomized into two groups.

GROUP A -Chlorhexidine alcohol + spirit is used.

GROUP B - PI (10%) + spirit (standard protocol)

Patients will be preoperatively evaluated with detailed obstetric, demographic history and examination. Prior to the surgery, antiseptic skin preparation was done on the OT table.

INTERVENTION GROUP

Group A: Skin preparation was done with gauze soaked in chlorhexidine solution. Scrubbing will be done in centrifugal motion from the subcostal region to mid-axillary to mid-thigh. The same procedure was repeated twice and dried with dry gauze.

PREOPERATIVE INTERVENTION :

1. CHLORHEXIDINE scrubbing of abdomen before the surgery in the preoperative area.
2. Painting parts with CHLORHEXIDINE solution and spirit as the antiseptic in the OT.
3. pre-op antibiotics- Inj. Ceftriaxone 1gm iv, Inj. Metronidazole 100ml iv (antibiotics as per our departmental protocol)
4. On table sterizone application (transparent filament with a silver lining in the center)

CONTROL GROUP

Group B: Iodine 10% solution was used. It was applied in the same manner & dried completely.

PREOPERATIVE INTERVENTION :

- 1.PI(10%) scrubbing of abdomen was done before the surgery in the preoperative area.
- 2.painting parts with PI(10%) solution and spirit as the antiseptic in the OT.
- 3.pre-op antibiotics- Inj. Ceftriaxone 1gm iv, Inj. Metronidazole 100ml iv(antibiotics as per our departmental protocol)
- 4.On table sterizone application(transparent filament with a silver lining in the center)

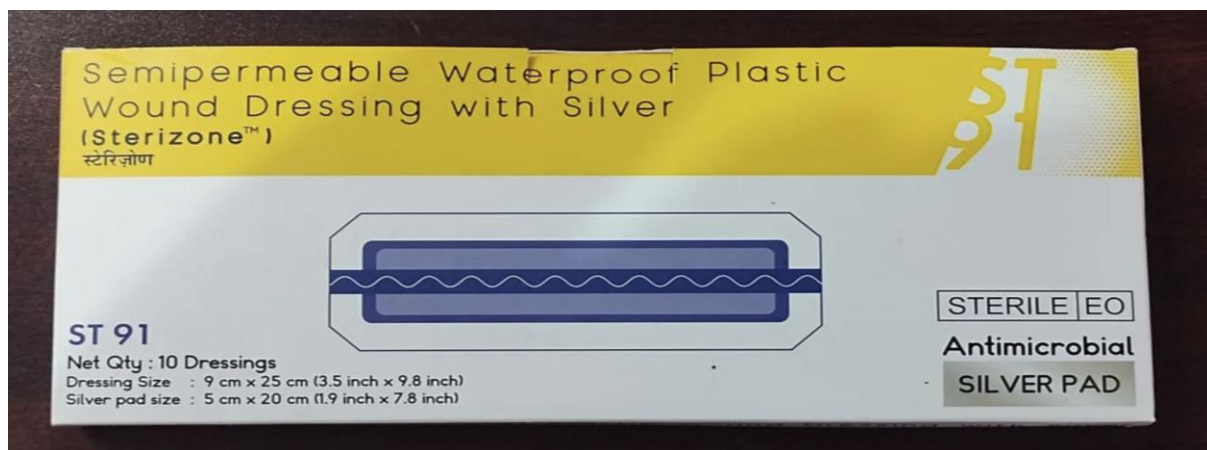


FIGURE 5 : STERIZONE

All the patients in both groups received a prophylactic antibiotic of 1gm Ceftriaxone (BD)+ 100mg metronidazole (TID) for the first 48 hours and then oral cefixime (BD) for 5 days.

The surgical sites will be inspected on post-op day 2 and cleaned with surgical spirit and will be covered with sterile dressing sterizone (transparent filament

with a silver lining in the center). Then the wound was inspected on day 5/day 7, or at the time of discharge, whichever is later.

In case of wound discharge, the wound swabs were taken and sent for culture and sensitivity & necessary wound care, in the form of antibiotics, and change dressing daily as per the individual case requirements was done.

NEED OF THE STUDY

To establish the efficacy of chlorhexidine-alcohol versus PI + alcohol in the prevention of SSI in women undergoing emergency CS

OUTCOME

- PRIMARY OUTCOME : Rate of SSI in both the study groups
- SECONDARY OUTCOME : Organism growth on swabs taken

Ethical Perspective

The study received ethical approval from the committee responsible for overseeing research adherence to ethical guidelines. Their endorsement granted under Order number BLDE (DU)/IEC/865/2022-23, dated 10 April 2023, adhered

strictly to the principles outlined in the Helsinki Declaration (176).

RESULTS

The study, a randomized prospective observational study, was conducted in the Department of Obstetrics and Gynaecology of SHRI B.M. PATIL MEDICAL COLLEGE AND RESEARCH CENTRE, VIJAYPURA.

Our study included **208** participants with 104 classified as cases and 104 as controls.

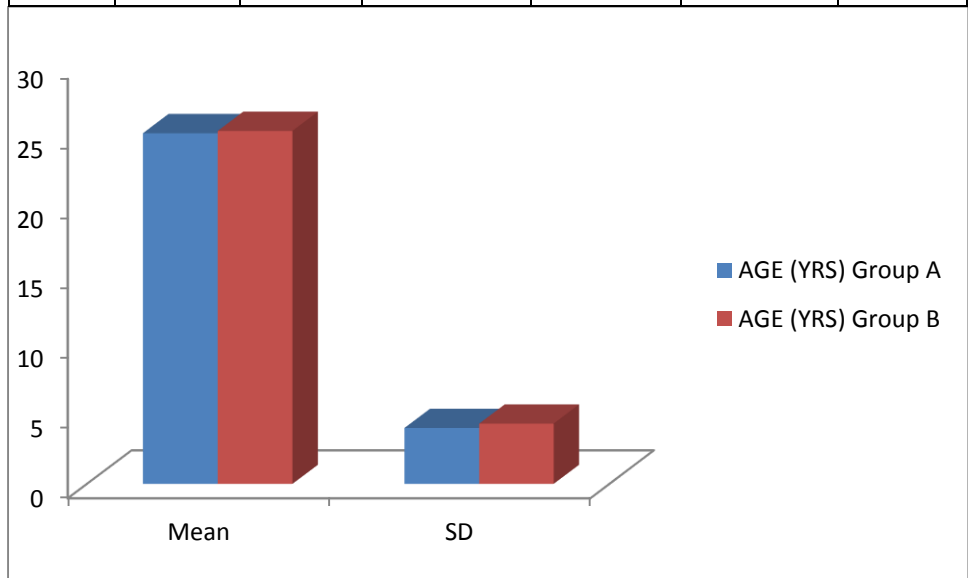
All patients were informed about the study, and written informed consent was obtained after approval for participation. Demographic parameters, chief complaints, and medical and obstetric history were recorded, history of allergy to PI was asked. General and systemic examinations was performed, and baseline investigations were conducted. All the patients received standard medical management based on their diagnosis. Duration of hospitalisation and pregnancy outcomes were noted.

The t-test was used to calculate the mean age of the patients, mean gestational age ,duration of surgery and duration of stay.

AGE OF PATIENTS

Table 1 : Mean Age Of Patients

	Group	N	Mean	SD	Mann-Whitney U test value	p-value	Remarks
AGE (YR)	Group A	104	25.087	4.027	5358	0.909	Not Significant
	Group B	104	25.25	4.339			



Graph no 1 : Bar Graph of mean age

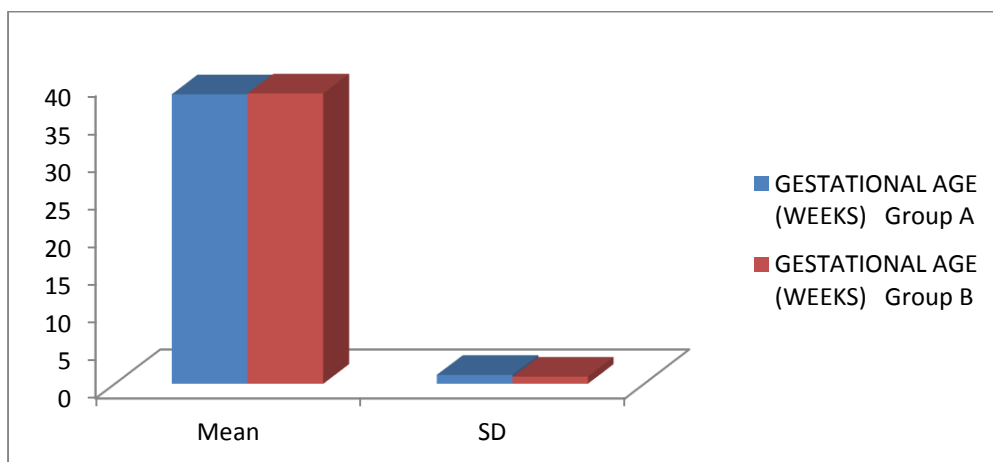
In Group A, the mean age of participants is 25.08 ± 4.027 (Mean $\pm$ SD)

In Group B, the mean age of participants is 25.25 ± 4.339 (Mean $\pm$ SD)

GESTATIONAL AGE

		Mean	SD	Mann-Whitney U test value	p-value	Remarks
GESTATIONAL AGE (WEEKS)	Group A	38.313	1.179	5340.5	0.877	Not Significant
	Group B	38.422	0.946			

Table no.2 : Comparison of gestational age in weeks



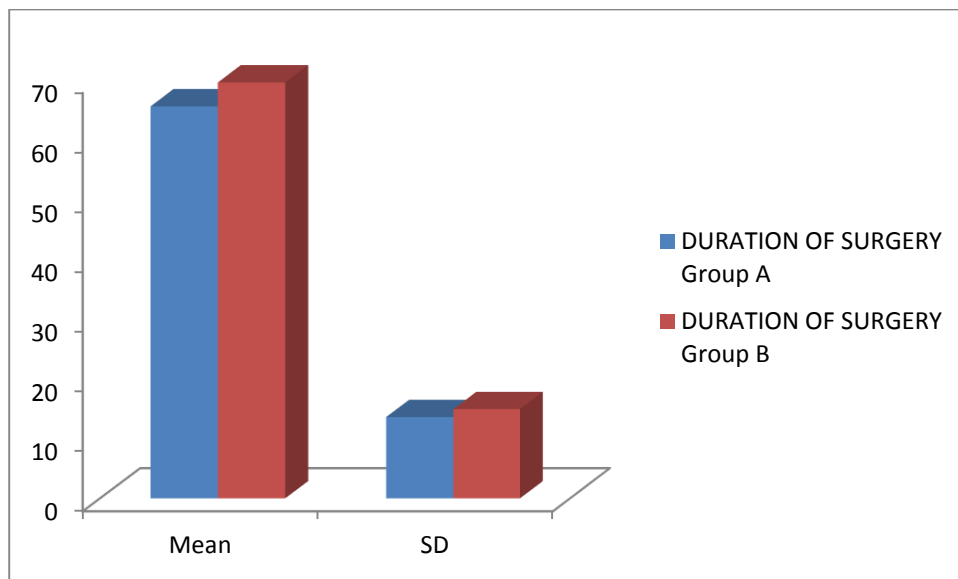
Graph no 2 : Bar Graph of gestational week

The average gestational age of participants in Group A and B were is 38.313 ± 1.179 (Mean $\pm$ SD) and 38.422 ± 0.946 (Mean $\pm$ SD) respectively.

DURATION OF SURGERY

		Mean	SD	Mann-Whitney U test value	p-value	Remarks
DURATION OF SURGERY(minutes)	Group A	65.577	13.694	4629.5	0.071	Not Significant
	Group B	69.567	15.026			

Table no 3 : Duration of surgery



Graph no 3 : Duration of surgery

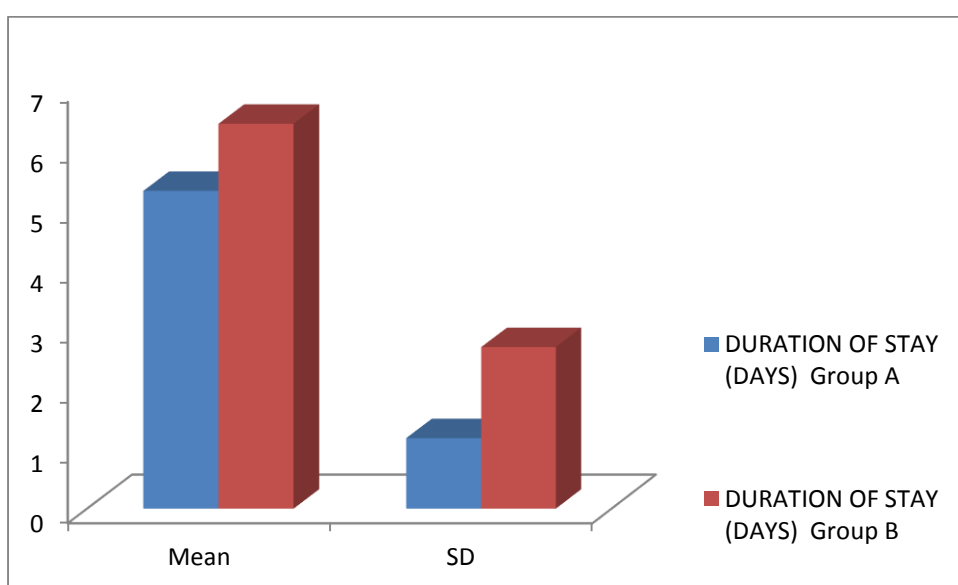
In Group A, the mean duration of surgery was 65.57 ± 13.694 (Mean $\pm$ SD) and

In Group B, the mean duration of surgery was 69.56 ± 15.02 (Mean $\pm$ SD)

DURATION OF STAY

	Group	N	Mean	SD	Mann-Whitney U test value	p-value	Remarks
Duration of stay	Group A	104	5.27	4.027	5358	0.909	Not Significant
	Group B	104	6.37	4.339			

Table no 4 : Duration of stay



Graph no 4 : Duration of stay

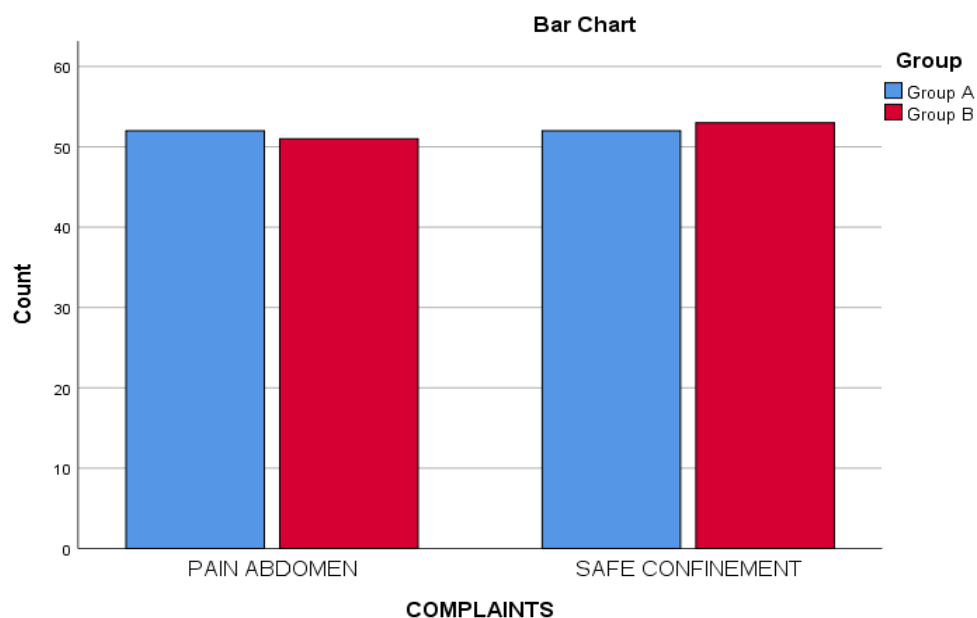
In Group A, the mean duration of stay is 5.27days. In Group B, the mean duration of stay is comparatively higher at 6.37 days.

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COMPLAINTS * Group

COMPLAINTS	Group		Total
	Group A	Group B	
PAIN ABDOMEN	52	52	104
	50.00%	50.00%	49.50%
SAFE CONFINEMENT	52	52	104
	50.00%	50.00%	50%
Total	104	104	208
	100.00%	100.00%	100.00%
Fisher Exact test value=128.808,p-value=0.000,Remarks=Significant			

Table no 5: Comparison of complaints



Graph no 5: Bar Graph of complaints

In both group A and B , 52 participants each presented with complaints of pain abdomen and 52 came for safe confinement each.

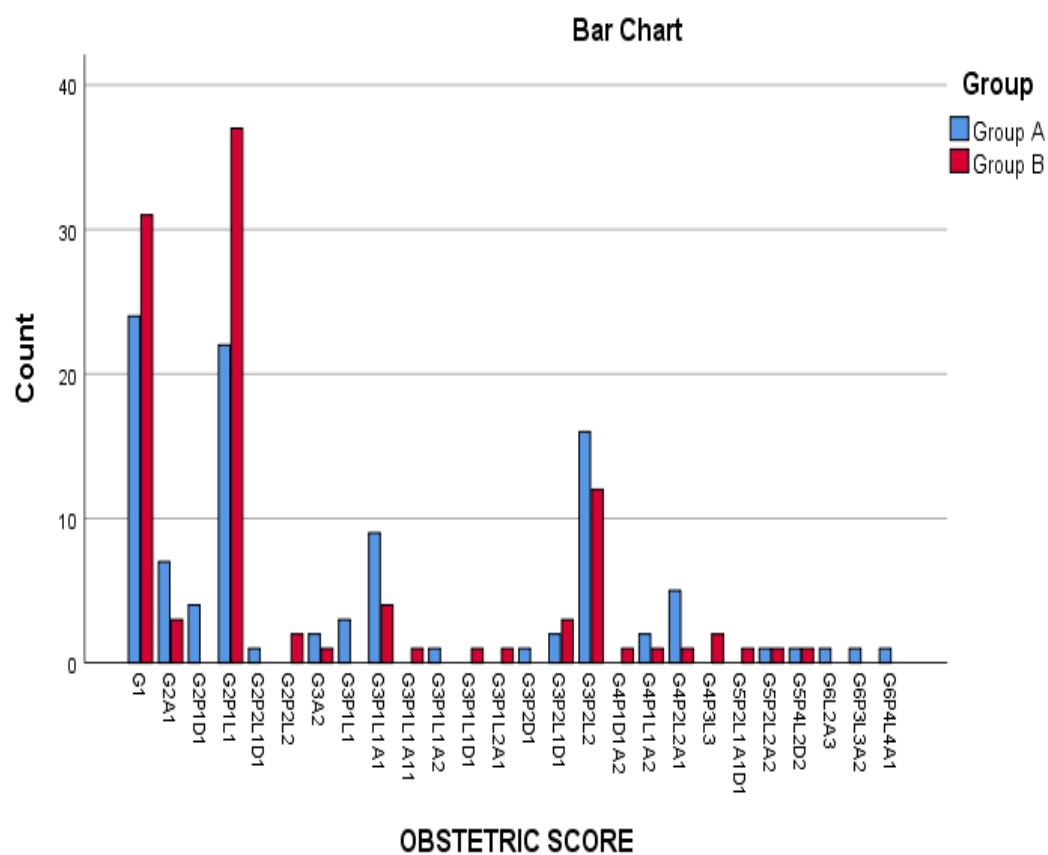
OBSTETRIC SCORE

OBSTETRIC SCORE	Group		Total
	Group A	Group B	
G1	24	31	55
	23.10%	29.80%	26.40%
G2A1	7	3	10
	6.70%	2.90%	4.80%
G2P1D1	4	0	4
	3.80%	0.00%	1.90%
G2P1L1	22	37	59
	21.20%	35.60%	28.40%
G2P2L1D1	1	0	1
	1.00%	0.00%	0.50%
G2P2L2	0	2	2
	0.00%	1.90%	1.00%
G3A2	2	1	3
	1.90%	1.00%	1.40%
G3P1L1	3	0	3
	2.90%	0.00%	1.40%
G3P1L1A1	9	5	13
	8.70%	4.80%	6.80%
G3P1L1A2	1	0	1
	1.00%	0.00%	0.50%
G3P1L1D1	0	1	1
	0.00%	1.00%	0.50%
G3P1L2A1	0	1	1
	0.00%	1.00%	0.50%

G3P2D1	1	0	1
	1.00%	0.00%	0.50%
G3P2L1D1	2	3	5
	1.90%	2.90%	2.40%
G3P2L2	16	12	28
	15.40%	11.50%	13.50%
G4P1D1A2	0	1	1
	0.00%	1.00%	0.50%
G4P1L1A2	2	1	3
	1.90%	1.00%	1.40%
G4P2L2A1	5	1	6
	4.80%	1.00%	2.90%
G4P3L3	0	2	2
	0.00%	1.90%	1.00%
G5P2L1A1D1	0	1	1
	0.00%	1.00%	0.50%
G5P2L2A2	1	1	2
	1.00%	1.00%	1.00%
G5P4L2D2	1	1	2
	1.00%	1.00%	1.00%
G6L2A3	1	0	1
	1.00%	0.00%	0.50%
G6P3L3A2	1	0	1
	1.00%	0.00%	0.50%
G6P4L4A1	1	0	1
	1.00%	0.00%	0.50%
Total	104	104	208
	100.00%	100.00%	100.00%

Fisher Exact test value=32.563,p-value=0.031,Remarks= Significant

Table no.6 Comparison of obstetric score



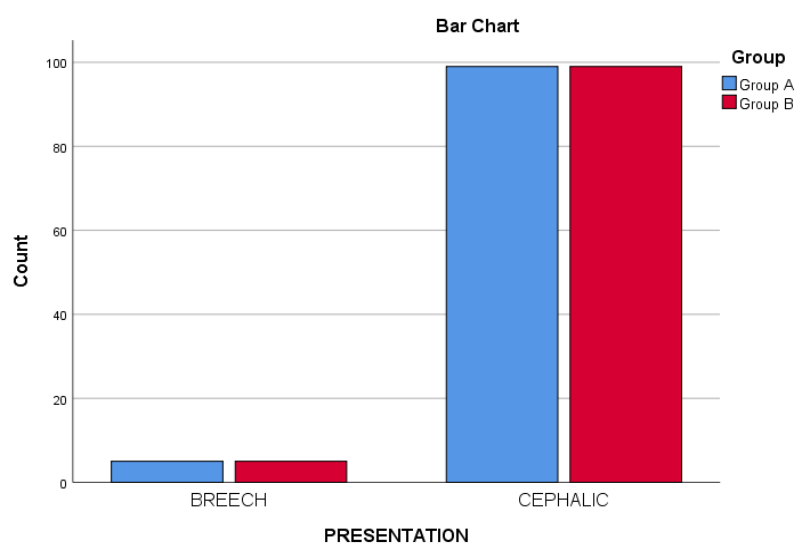
Graph no 6: Bar Graph of obstetric score

In group A, Primigravida were 24(23.1%) and in group B, Primigravida were 31(29.8%) remaining were all Multigravida.

PRESENTATION

PRESENTATION	Group		Total
	Group A	Group B	
BREECH	4	5	9
	3.8%	4.81%	4.33%
CEPHALIC	100	99	199
	96.15%	95.19%	95.67%
Total	104	104	208
	100.00%	100.00%	100.00%
Chi-square test value=32.563,p-value=0.031,Remarks=			
Significant			

Figure 7 : Comparison of presentation



Graph no 7 : Bar Graph of presentation

In group A, 100(96.15%) had cephalic presentation and 4(3.8%) presented as breech presentation

In group B 99(95.2%) had cephalic presentation and 5(4.80%) presented as breech presentation.

MODE OF PLACENTA DELIVERY

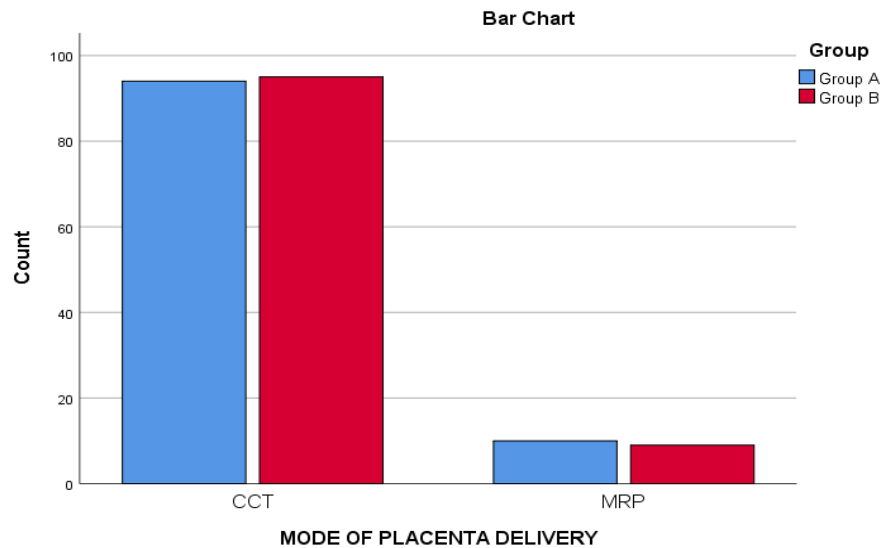
The mode of placenta delivery were of two types:

Table 8 : Comparison of mode of placenta delivery

*Controlled cord traction(CCT)

MODE OF PLACENTA DELIVERY	Group		Total
	Group A	Group B	
*CCT	94	95	189
	90.40%	91.30%	90.90%
**MRP	10	9	19
	9.60%	8.70%	9.10%
Total	104	104	208
	100.00%	100.00%	100.00%
Chi-square test value=0.058,p-value=0.810,Remarks=Not Significant			

** Manual removal of placenta(MRP).



Graph no 8: Bar Graph of mode of placenta delivery

In group A 94(90.40%) placenta was delivered by CCT and 10(9.60%) was delivered by MR.

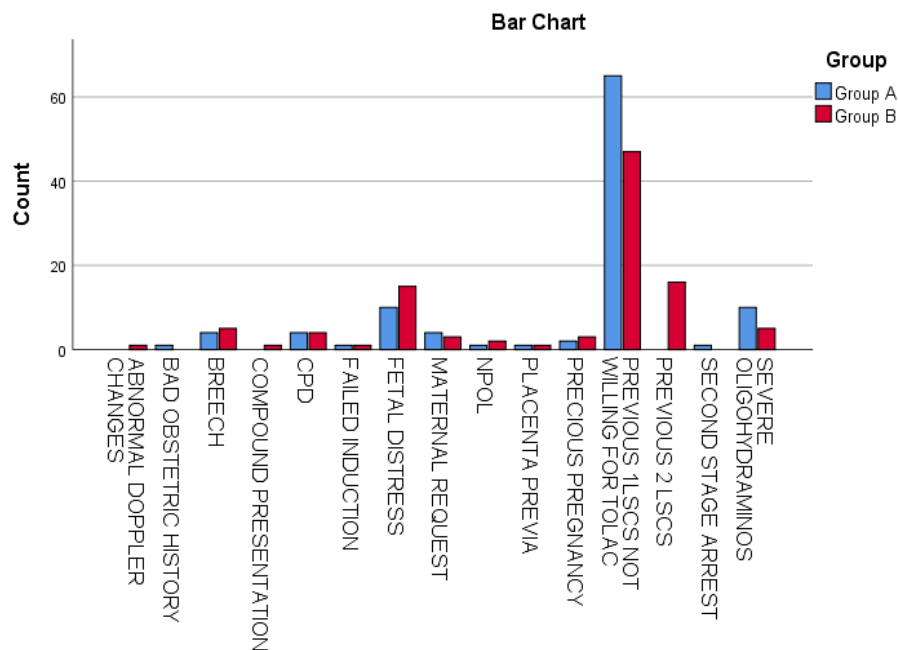
In group B 95(91.30%) placenta was delivered by CCT and 9(8.70%) was delivered by MR.

INDICATION * Group

INDICATION	Group		Total
	Group A	Group B	
ABNORMAL DOPPLER CHANGES	0	1	1
	0.00%	1.00%	0.50%
BAD OBSTETRIC HISTORY	1	0	1
	1.00%	0.00%	0.50%
BREECH	4	5	9
	3.80%	4.80%	4.30%
COMPOUND PRESENTATION	0	1	1
	0.00%	1.00%	0.50%
CEPHALO PELVIC DISPROPORTION (CPD)	4	4	8
	3.80%	3.80%	3.80%
FAILED INDUCTION	1	1	2
	1.00%	1.00%	1.00%
FETAL DISTRESS	10	15	25
	9.60%	14.40%	12.00%
MATERNAL REQUEST	4	3	7
	3.80%	2.90%	3.40%
NPOL	1	2	3
	1.00%	1.90%	1.40%
PLACENTA PREVIA	1	1	2
	1.00%	1.00%	1.00%
PRECIOUS PREGNANCY	2	3	5
	1.90%	2.90%	2.40%

PREVIOUS 1LSCS NOT WILLING FOR TOLAC	65	47	112
	62.50%	45.20%	53.80%
PREVIOUS 2 LSCS	0	16	16
	0.00%	15.40%	7.70%
SECOND STAGE ARREST	1	0	1
	1.00%	0.00%	0.50%
SEVERE OLIGOHYDRAMINOS	10	5	15
	9.60%	4.80%	7.20%
Total	104	104	208
	100.00%	100.00%	100.00%
Fisher exact test value=29.757,p-value=0.001,Remarks=Significant			

Table no 9 : Comparison of indications



Graph no 9 : Bar chart of indications

Comparison of the indications for CS in a study population. The indications include breech presentation, CPD, fetal distress, maternal request, non-progression of labor, oligohydramnios, previous 1 LSCS (lower segment CS), previous 2 LSCS, and second stage arrest. The frequency and percentage of participants with each indication are provided for both groups.

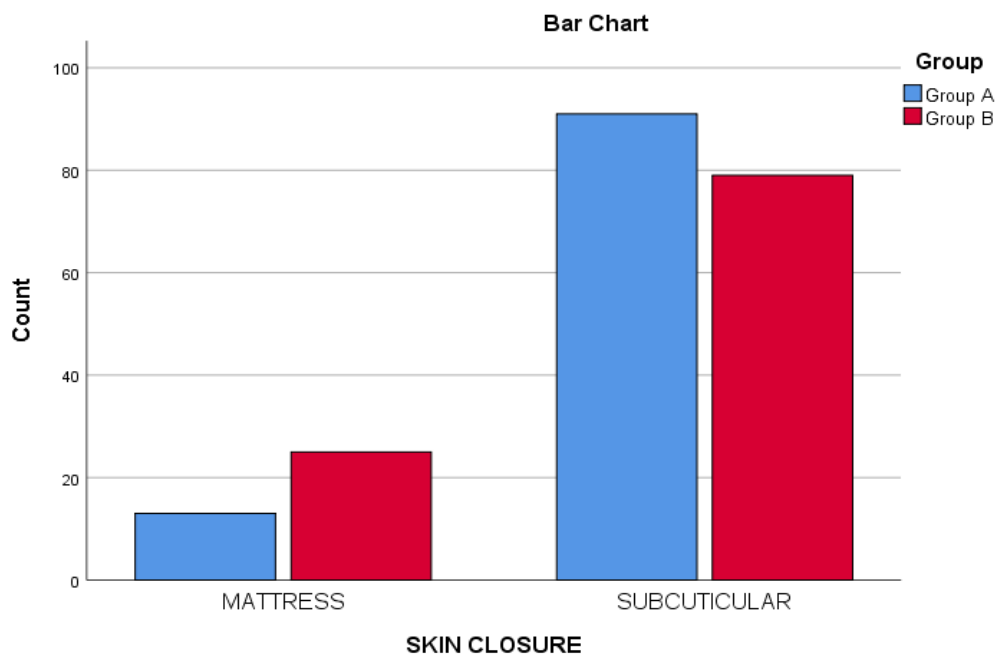
In Group A, the most common indications for CS is previous 1 LSCS (65 cases, 62.50%), fetal distress (10 cases, 9.6%), and severe oligohydramnios (10 cases, 9.6%). Other indications include CPD (4 cases, 3.80%), maternal request (4 cases, 3.80%), non- progression of labor (1 cases, 1%), breech presentation (4cases, 3.80%), and second stage arrest (1 cases, 1%),bad obstetric history (1case,1%)

In Group B, the most common indications for CS is previous 1 LSCS (47 cases, 45.20%),previous 2LSCS (16 cases, 15.40%) fetal distress (15 cases, 14.4%). Other indications includes severe oligohydramnios (5 cases, 4.80%). CPD (4 cases, 3.80%), maternal request (3 cases, 3.80%), non- progression of labor (2 cases, 1.90%), breech presentation (5cases, 4.80%), precious pregnancy (3,2.90%)bad obstetric history (1case,1%)

SKIN CLOSURE GROUP

SKIN CLOSURE	Group		Total
	Group A	Group B	
MATTRESS	13	25	38
	12.50%	24.00%	18.30%
SUBCUTICULAR	91	79	170
	87.50%	76.00%	81.70%
Total	104	104	208
	100.00%	100.00%	100.00%

Table no 10 : Comparison of skin closure



Graph no 10 : Bar Graph of skin closure

Types of skin suturing used in our patients were mattress and subcuticular. The suture materials used were Monocryl and Ethilon.

In Group A, most participants (91 cases, 87.5%) had their skin closed with Monocryl, while a smaller proportion (13 cases, 12.5%) have their skin closed with Ethilon. 2 and 1 case closed by monocryl and ethilon respectively developed SSI.

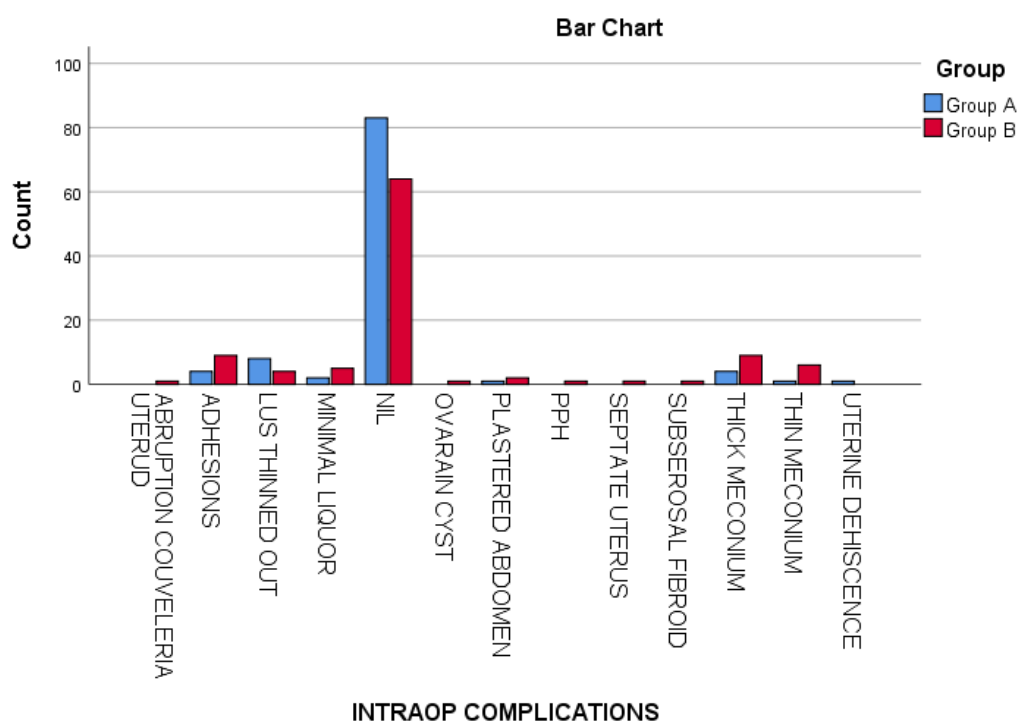
In Group B, a slightly lower percentage of participants (79 cases, 76 %) had their skin closed with Monocryl, and a slightly higher rate (25 cases, 24%) had their skin closed with Ethilon. 4 And 7 Cases closed by monocryl and ethilon respectively developed SSI.

INTRA-OPERATIVE COMPLICATIONS

INTRA-OPERATIVE COMPLICATIONS	Group		Total
	Group A	Group B	
ABRUPTION COUVELERIA UTERUD	0	1	1
	0.00%	1.00%	0.50%
ADHESIONS	4	9	13
	3.80%	8.70%	6.30%
LUS THINNED OUT	8	4	12
	7.70%	3.80%	5.80%
MINIMAL LIQUOR	2	5	7
	1.90%	4.80%	3.40%
NIL	83	64	147
	79.80%	61.50%	70.70%
OVARAIN CYST	0	1	1
	0.00%	1.00%	0.50%
PLASTERED ABDOMEN	1	2	3
	1.00%	1.90%	1.40%
PPH	0	1	1
	0.00%	1.00%	0.50%
SEPTATE UTERUS	0	1	1
	0.00%	1.00%	0.50%
SUBSEROSAL FIBROID	0	1	1
	0.00%	1.00%	0.50%
THICK MECONIUM	4	9	13
	3.80%	8.70%	6.30%

THIN MECONIUM	1	6	7
	1.00%	5.80%	3.40%
UTERINE DEHISCENCE	1	0	1
	1.00%	0.00%	0.50%
Total	104	104	208
	100.00%	100.00%	100.00%
Fisher exact test value=18.110,p-value=0.039,Remarks=Significant			

table 11 : Comparison of intra-operative findings



Graph no 11 : Intra-operative complications

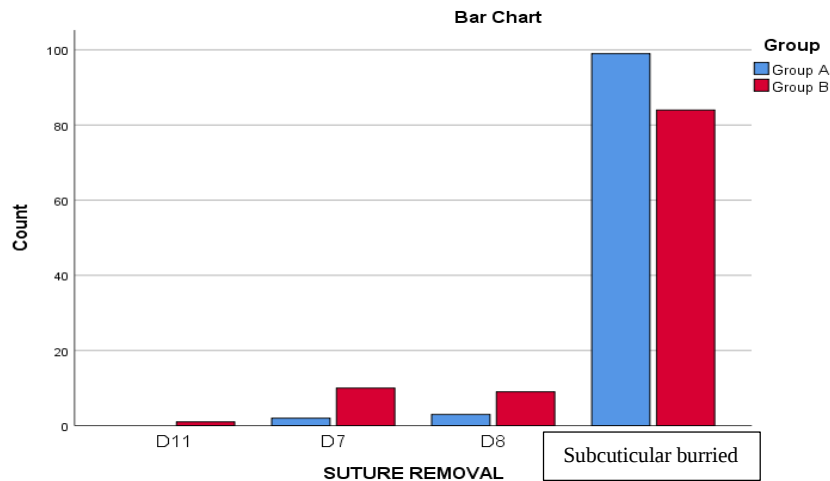
The intra-operative findings noted in group A were adhesions (4cases,3.80%) thinned out LUS (8cases,7.70%) thick meconium(4 cases,3.780%) Thin meconium (1case,1%) and others such a minimal liquor,plastered abdomen and uterine dehiscence.

The intra-operative findings noted in group B were adhesions (9cases,8.70%) thinned out LUS (4cases,3.80%) thick meconium(9 cases,8.70%) Thin meconium (6cases,5.8%) and others such as abruption,fibroid,,plastered abdomen and Post partum haemorrhage(PPH)

SUTURE REMOVAL

SUTURE REMOVAL	Group		Total
	Group A	Group B	
D11	0	1	1
	0.00%	1.00%	0.50%
D7	2	10	12
	1.90%	9.60%	5.80%
D8	3	9	12
	2.90%	8.70%	5.80%
SUBCUTICULAR BURRIED SUTURES	99	84	183
	95.20%	80.80%	88.00%
Total	104	104	208
	100.00%	100.00%	100.00%

Figure 12 : Comparison of day of suture removal.



Bar Graph 12 :Day of suture removal

In GROUP A, 99 cases had subcuticular burried sutures. Remaining cases had mattress sutures and suture removal was done on day 8 for 3 cases and on day 7 for 2 cases.

In GROUP B, 84 cases had subcuticular burried sutures. Remaining cases had mattress sutures, suture removal was done on day 8 for 9 cases ,day 7 for 10 cases and day 11 for 1 case.

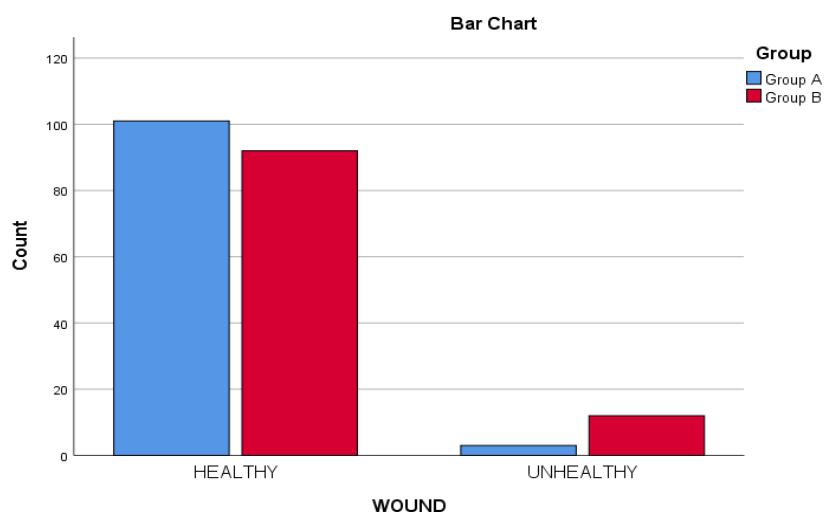
WOUND

DAY 7 WOUND	Group		Total
	Group A	Group B	
HEALTHY	101	92	193
	97.10%	88.50%	92.80%
UNHEALTHY	3	12	15
	2.90%	11.50%	7.20%
Total	104	104	208
	100.00%	100.00%	100.00%

**Fisher exact test value=5.820,
p-value=0.029,Remarks=Significant**

Table no 13 :

Type of wound



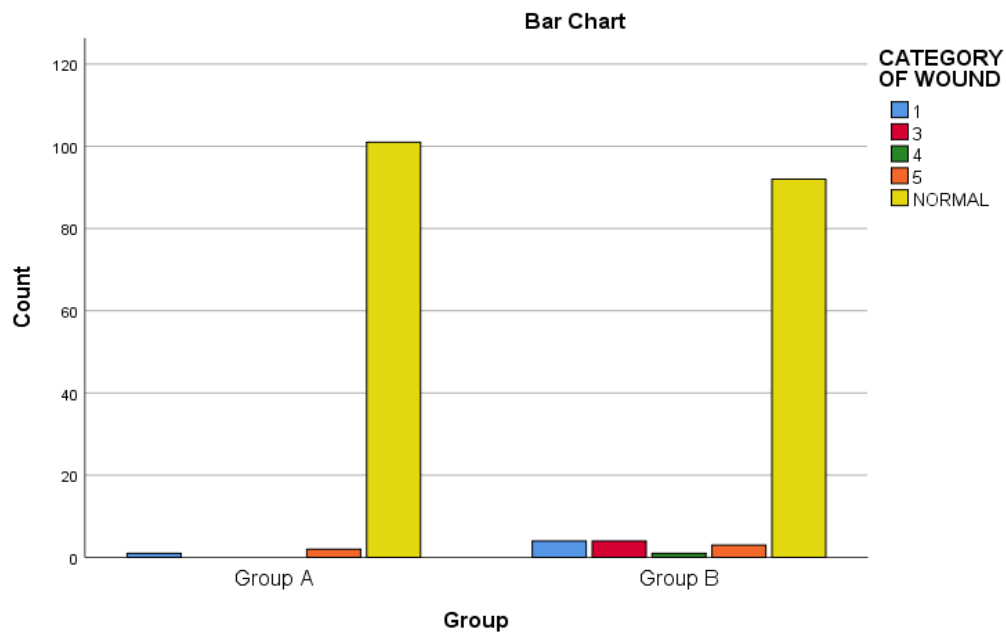
Graph no 13: Bar Graph of wound

In group A, 3 wounds (2.90%) were found to be unhealthy and in group B 12 (11.50%) were found to be unhealthy.

CATEGORY OF WOUND * Group

Group	CATEGORY OF WOUND					Total
	1	3	4	5	NORMAL	
Group A	1	0	0	2	101	104
	20.00%	0.00%	0.00%	40.00%	52.30%	50.00%
Group B	4	4	1	3	92	104
	80.00%	100.00%	100.00%	60.00%	47.70%	50.00%
Total	5	4	1	5	193	208
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Fisher Exact test value=6.977,p-value=0.104,Remarks=Not Significant						

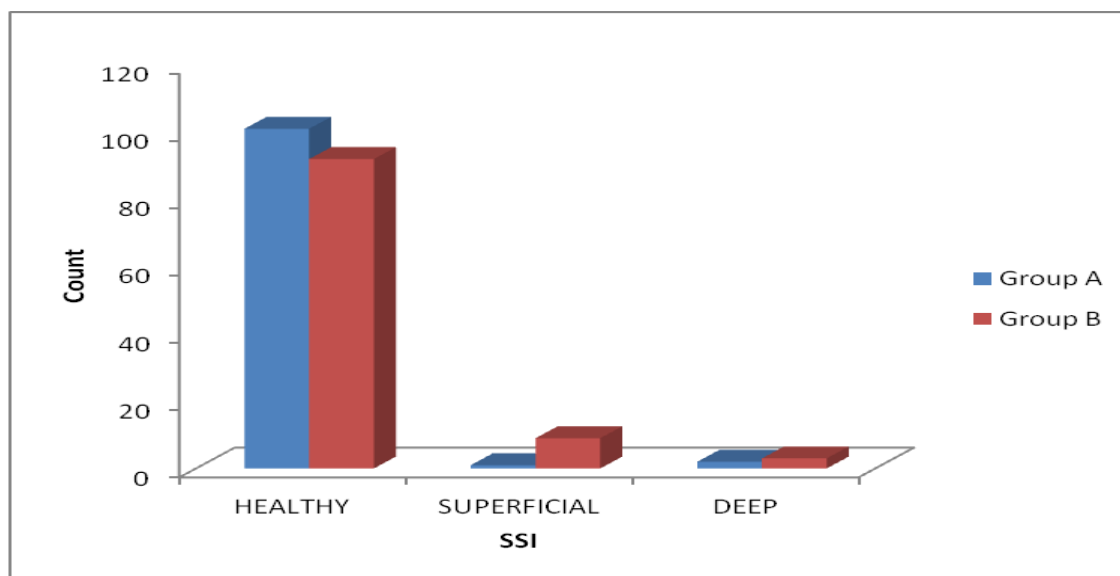
Figure 14 : Comparison of category of wound



Graph no 14 : Bar Graph of category of wound

SSI	Group		Total
	Group A	Group B	
HEALTHY	101	92	193
	97.10%	88.50%	92.80%
SUPERFICIAL	1	9	10
	1.00%	8.70%	4.80%
DEEP	2	3	5
	1.90%	2.90%	2.40%
Total	104	104	208
	100.00%	100.00%	100.00%
Fisher Exact test value=7.187,p-value=0.018,Remarks=Significant			

Table no 15 : Comparison of SSI



Graph no 15 : Comparison of SSI

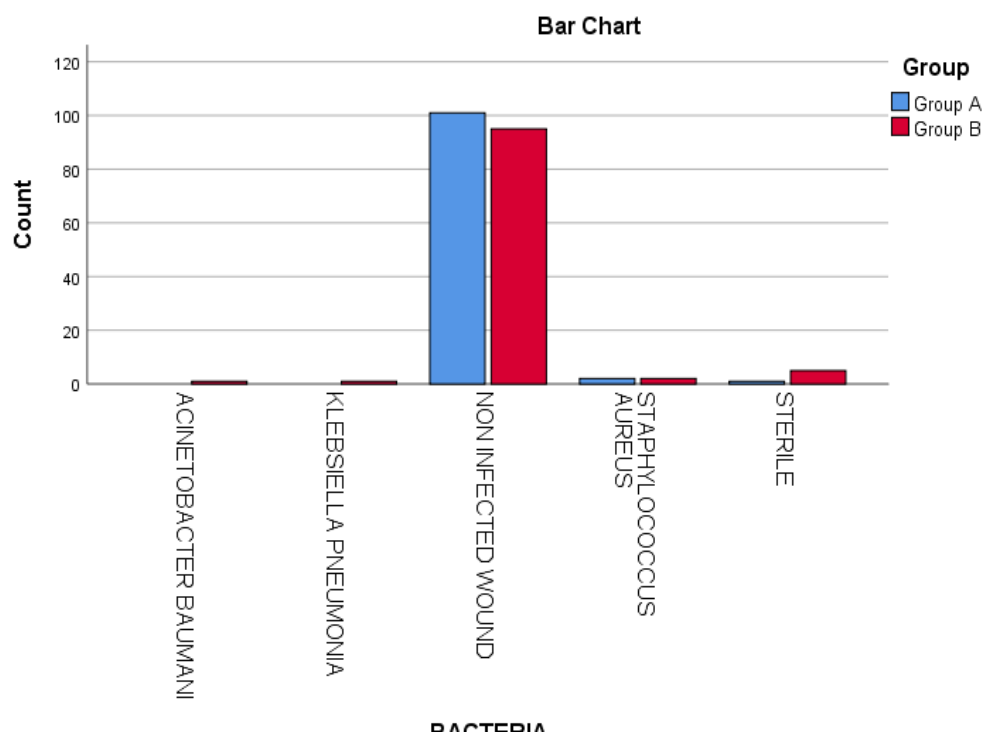
When comparing the SSI with CDC classification in our study, in Group A ,the Superficial SSI was 1 (1%) and deep SSI was 2 (1.90%) while in Group B, Superficial SSI was 9 (8.70%)and deep SSI was 3(2.93%)

OTHER ANTIBIOTICS * Group

OTHER ANTIBIOTICS	Group		Total
	Group A	Group B	
CEFTRIAZONE	1	1	2
	1.00%	1.00%	1.00%
LEVOFLOXACIN	0	2	2
	0.00%	1.90%	1.00%
LINEZOLID	1	2	3
	1.00%	1.90%	1.40%
MEROPENEM	0	1	1
	0.00%	1.00%	0.50%

TAZABACTUM	0	1	1
	0.00%	1.00%	0.50%
NOT RECEIVED ADDITIONAL ANTIBIOTIC	102	97	199
	98.10%	93.30%	95.70%
Total	104	104	208
	100.00%	100.00%	100.00%
Fisher exact test value=4.275,p-value=0.478,Remarks=Not Significant			

Figure 16: Comparison of additional antibiotics



Graph no16: Bar Graph of additional antibiotics

In Group A ,levofloxacin and linezolid were used.

The additional antibiotics used in our study in Group B was meropenem and tazabactum compared to Group A.

BACTERIA

BACTERIA	Group		Total
	Group A	Group B	
ACINETOBACTER BAUMANI	0	1	1
	0.00%	1.00%	0.50%
KLEBSIELLA PNEUMONIA	0	1	1
	0.00%	1.00%	0.50%
STAPHYLOCOCCUS AUREUS	2	2	4
	1.90%	1.90%	1.90%
STERILE	1	5	6
	1.00%	4.80%	2.90%
NON INFECTED WOUNDS	101	95	196
	97.10%	91.30%	94.20%
Total	104	104	208
	100.00%	100.00%	100.00%
Fisher Exact test value=4.667,p-value=0.255,Remarks=Not significant			

table no 17: Bacteria isolated

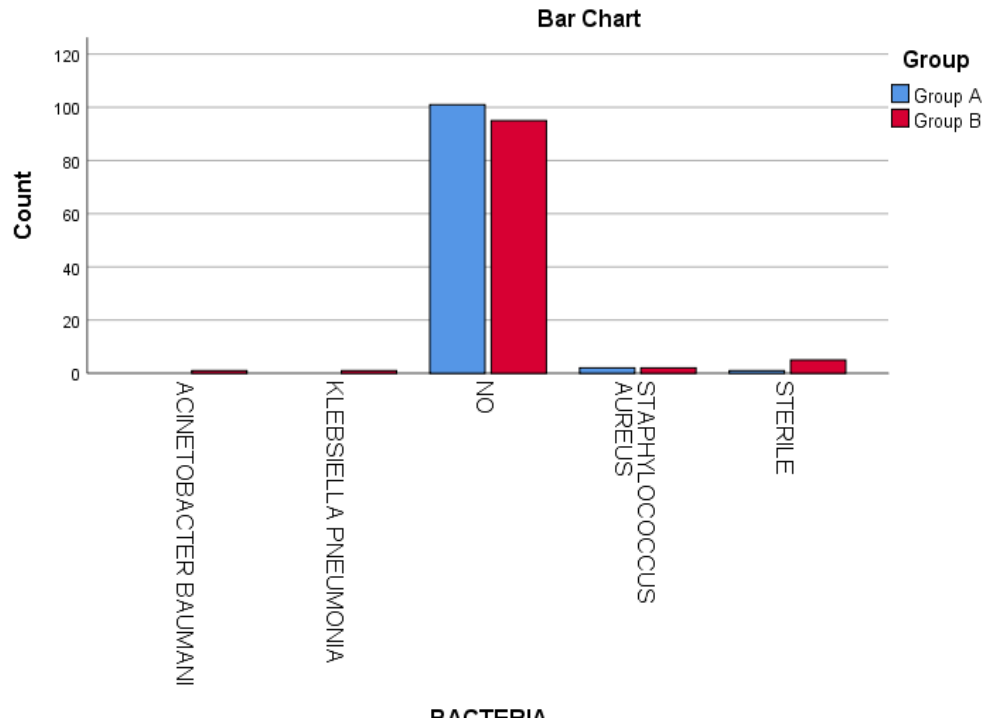


figure no17: Bar Graph comparison of bacteria isolated

The bacteria isolated was Staphylococcus aureus, Acinetobacter baumani and Klebsiella pneumonia.

The most commonest bacteria isolated was staphylococcus aureus (4 cases)

In group A, the bacteria isolated was staphylococcus aureus,2 cases

In group B, the bacteria isolated along with staphylococcus aureus(2cases) were Acinetobacter baumani and klebsiella pneumonia,whereas 6 cases were sterile.

SECONDARY SUTURING

SECONDARY SUTURING	Group		Total
	Group A	Group B	
NO	103	99	202
	99.00%	95.20%	97.10%
YES	1	5	6
	1.00%	4.80%	2.90%

Total	104	104	208
	100.00%	100.00%	100.00%
Fisher Exact test value=2.746,p-value=0.212,Remarks=Not Significant			

Graph no18: Comparison of secondary suturing

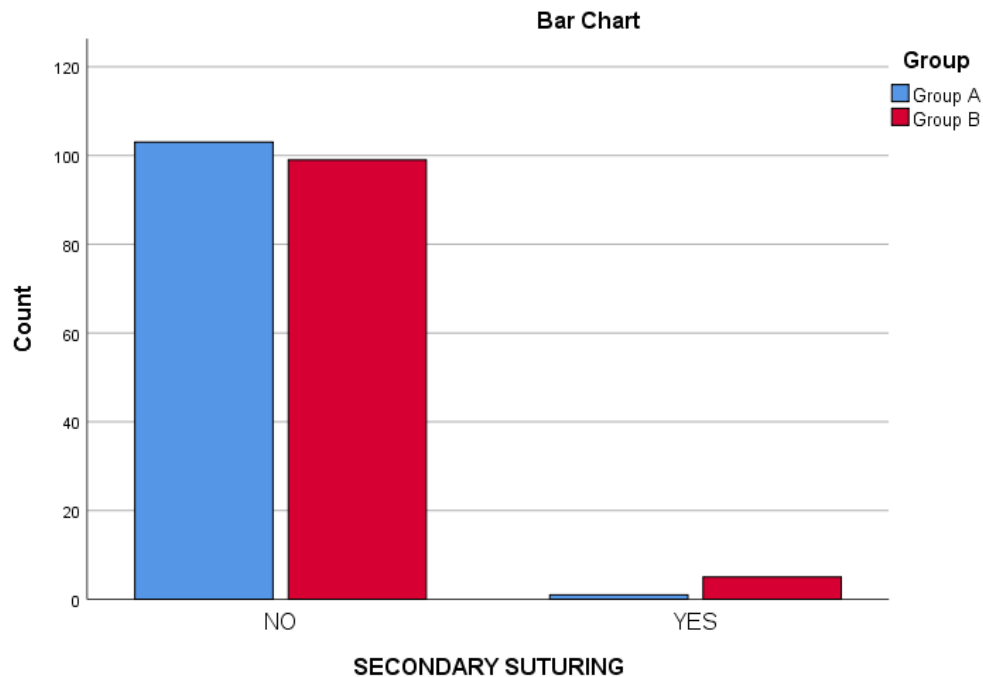


Figure no 18. : Comparison of secondary suturing

The total number of participants underwent secondary suturing were 6,1 from Group A and 5 from group B.

DISCUSSION

Surgical site infections (SSIs) are persistent and preventable healthcare-associated infections. With the growing demand for evidence-based interventions to prevent SSIs, this issue has become increasingly important. As the number of surgeries rises, the morbidity linked to SSIs, along with their impact on healthcare costs, has become a significant concern. Recognizing the need for effective preventive strategies, the study by Kesani VP et al. (1) aimed to establish a reliable preoperative skin antiseptic for surgical sites to reduce the occurrence of SSIs

In our study 5.28%(11) has been reported in emergency CS when compared to 1.92% (4) in elective CS. In a study done by Alfouzan W et al, A high proportion of SSI (25.2%) has been reported in emergency CS when compared to 7.6% in elective cases (49) and a study from Oman had 1.5% of SSIs were reported after emergency CS compared to 1.16% in elective cases(50)

The current study also found a lower likelihood of developing an SSI in the chlorhexidine-alcohol group, although this result was not statistically significant according to the southampton scoring system. However, other studies have shown that the SSI rates in both the chlorhexidine-alcohol and PI groups were nearly identical. For example, a retrospective cohort study by Menderes G et al. [3] found that the SSI rates in both the chlorhexidine-alcohol and PI groups were almost the same, at 5% and 5.8%, respectively.

In a recent RCT conducted in India by Luwang et al.,(3) chlorhexidine was found to be a better antiseptic agent than PI (5.4% vs.8.6%, $P=0.276$).

A randomized control trial by Tuuli et al., found the rate of SSI between chlorhexidine-alcohol and PI groups as 4.0% and 7.3% respectively with a significant $P=0.02$ (10) similar to our study, the rate of SSI between

chlorhexidine-alcohol and PI groups 2.90% and 11.50% with a significant p value $p=0.02$.

In a randomized trial by Ngai IM et al. [33], which focused on preoperative skin preparation before CS, there was no significant difference in the rate of SSIs between the chlorhexidine-alcohol and PI groups, with rates of 4.5% and 4.6%, respectively. The study involved a population of 1,404 women undergoing non-emergent CS. Similarly, the CAPICA trial in May 2017 found almost identical SSI rates in the chlorhexidine-alcohol and PI groups, at 6.3% and 7%, respectively. The study concluded that PI (PVI) should still be considered an appropriate antiseptic for CS.

However, chlorhexidine and PI were found to be similar in efficacy in studies by Elshamy et al., (3.7% vs. 4.6%, $P=0.35$)¹⁸ and Springel et al., the CAPICA trial (6.3% vs. 7.0%, $P=0.38$)⁽¹⁹⁾ However, in both the above studies, results were not significant ($P>0.05$).

In an other randomized controlled study conducted by Srini- vas A et al. (35) in patients undergoing clean contaminated upper abdominal surgeries, the rate of SSI was 10.8% in the chlorhexidine–gluconate group and 17.9% in the povidone–iodine group. However, it was statistically not significant. The study population size is small ($n = 342$) which is nearly similar to the present study.

In our study superficial SSI rate (4.80%) and deep SSI rate (2.40%) with p value 0.018 which was statistically significant. Panfeng wang et al (36) meta-analysis results revealed that the incidence rate of surgical site wound infections [odds ratio (OR): 0.67, 95% confidence interval (CI): 0.58–0.78, $p < 0.001$], superficial SSI rate (OR: 0.59, 95% CI: 0.46–0.75, $p < 0.001$) and deep SSI rate (OR: 0.49, 95% CI: 0.31–0.79, $p = 0.003$) were all lower in patients subjected to chlorhexidine disinfection compared to those patients receiving PI disinfection.

In our study, the number of patients who underwent secondary suturing were 6. In the chlorhexidine group as compared to the PI group, a significantly greater percentage was managed with dressing alone and a significantly lesser percentage required secondary suturing.

Researches showed that length of hospital stay were significantly associated with SSIs. In our study, the mean duration of hospital stay (chlorhexidine vs. PI) is 5.27 ± 1.17 and in controls is 6.39 ± 2.68 .

A study done by Tuuli et al found no significant difference in the risk of SSI in women closed with Vicryl or Monocryl(13)

The United States Centre for CDC and the United Kingdom's National Collaborating Centre for Women's and Children's Health, NICE agreed that surgical incisions should be covered with bandage for 48 hours after surgery.

A prospective observational study that compared the incidence of SSI between the Chlorhexidine and PI group among pregnant women indicated for elective CS reported that SSI was 3.7% in the Chlorhexidine group compared with 4.6% in the PI group, with odds ratio as 0.78 and difference was not statistically significant as p-value was 0.35 thus demonstrating that both antiseptic agents were suitable for preparing skin prior to elective CS.(37)

Fitzgerald et al, (38) remarked that chlorhexidine is a chemical antiseptic and that it is effective against both Gram positive and Gram-negative bacteria, although its effect against fungi and other pathogens were to be investigated.

Giacometti et al, (39) concluded that iodine is an effective broad-spectrum bactericide, also being effective against yeasts, molds and protozoans.

A recent meta-analysis evaluated 16 clinical trials from 1979 to 2011, involving a total of 9,980 patients, came to a similar conclusion that whole-body

showering or cleansing showed no benefit in preventing postoperative surgical site infection.(40)

In our study maternal age was 25.08 ± 4.027 . Ayala et al (41) and pathak et al (42) found that increased maternal age more than or equal to 35 had higher chances of developing SSI.

Our study and Odada et al(43) found no association with parity and SSI, while Zejnullahu VA et al(44) concluded that patients with a history of previous cesarean section were 7.4 times more likely to develop SSI compared to the group without prior cesarean surgery.

The average duration of our study was around 65 mins and study conducted by Killian et al.(45) and Dr. Ganesh Mhaske et al.(46) reported that surgery duration of more than 1 hour increased the risk for SSI more than two fold. In an Irish case-control study by Saeed et al,(47%) 75% of women with SSI were delivered by emergency CS and 25% by elective CS and the overall rate of SSI following CS was 2%. Some of the intra operative complications noted in our study were adhesions, thinned out LUS, meconium stained liquor. A study by Ma'ayeh M et al, concluded that meconium-stained amniotic fluid may be associated with an increased risk of postoperative surgical site infection Lachapelle et al(48) concluded that the incidence of allergic reactions among various methods of perioperative skin preparation adverse skin reactions to skin preparations can potentially contribute to post-operative infections and poor wound healing though such incidence did not occur in our study.

13.33% of skin closed by mattress sutures and 5.88% of skin closed by subcuticular sutures developed SSI. In a study done by Shanbhag et al(50) and Ghuman et al., (51) Skin closed with mattress sutures developed more SSI compared to subcuticular suture.

The wound swab cultures showed no significant result difference among the SSIs of the two study groups and this was similar to studies by Kesani VP et al., The most common organism associated with both of our study groups were *Staphylococcus aureus* while in the study by Kesani VP et al,(1) *E. coli* was found to be the most common organism (42.10% vs. 26.82%). However, in the Indian study conducted by Luwang et al.,(3) *E. coli* (31.25%) was found to be the most commonly isolated organism from post-cesarean SSI. They also showed that chlorhexidine is effective against *Enterococcus faecalis* and *E. coli*.

Conclusion

Our study concluded that patients who received chlorhexidine-alcohol as a skin antiseptic had a lower likelihood of developing an SSI compared to those who received PI. On analysing the results in the two groups, we found that on using chlorhexidine alcohol for surgical site antisepsis, the rate of SSI – overall, superficial incisional and deep incisional, was significantly lesser than on using povidone-iodine

The strength of the study lies in its design as a prospective randomized controlled trial conducted in a tertiary care institute.

Limitations of the study

The limitation of the study is that some more factors which might confound the results of the study like expertise of surgeon performing the CS, timing of the CS, subcutaneous tissue thickness, and its relatively small sample size.

Another drawback is that, pre-operative skin swab for analysis of skin microflora was not performed.

SUMMARY

This randomised control study was at labor room of Shri B M Patil Medical College And Research Centre. Women undergoing CS were randomized into 2 groups on basis of computer generated randomisation.

The two groups include an interventional and a control group. The rate of SSI and organism isolated was analysed. Patients with SSI in the control group were 11.50% and 2.9% SSI in interventional group were with a statistically significant 'p' value of 0.02 obtained after applying chi square.

Out of which participants had superficial SSI 1 (1%) and participants had deep SSI was 2 (1.90%) in the interventional group. In the control group participants had superficial SSI 9 (8.70%) and 3 (2.93%) participants had deep SSI.

Patients requiring secondary suturing in the control group was 1 (1%) and in 5 (4.80%) interventional group. Healthy wound was noted in 88.50% and 97.10% of participants in the control and interventional group respectively.



FIGURE 6: Erythema noted in case of group A



FIGURE 7 : DRAIN IN SITU IN GROUP B



FIGURE 8 : SECONDARY SKIN RESUTURED IN GROUP B



FIGURE 9 : PUS NOTED IN A CASE OF GROUP B



FIGURE 10 : SSI IN GROUP B



FIGURE 11 : DEEP SSI OF GROUP A



FIGURE 12 : DEEP SSI OF GROUP B

ANNEXURE I
CONSENT FORM

B.L.D.E. (DEEMED TO BE UNIVERSITY)
SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL AND
RESEARCH CENTER, VIJAYAPURA-586103

**INFORMED CONSENT FOR PARTICIPATION IN DISSERTATION/
RESEARCH**

I, the undersigned, _____, D/O or W/O _____, aged _____ years, ordinarily resident of _____ do hereby state/declare that DR. SHRAVANTHI SWAMY of Shri. B. M. Patil Medical College Hospital and Research Centre has examined me thoroughly on _____ at _____ (place) and it has been explained to me in my own language that I am suffering from _____ disease (condition) and this disease/condition mimic the following diseases. Further DR. SHRAVANTHI SWAMY informed me that she is conducting a dissertation/research titled “CHLORHEXIDINE -ALCOHOL VERSUS POVIDONE IODINE + ALCOHOL AS PRE-OPERATIVE ANTISEPTIC FOR PREVENTION OF SURGICAL SITE INFECTION IN CAESAREAN SECTION : A RANDOMISED CONTROL TRIAL ” under the guidance of DR. ARUNA M BIRADAR requesting my participation in the study. Apart from routine treatment procedures, the pre-operative, operative, postoperative, and follow-up observations will be utilized for the study as reference data. The doctor has also informed me that during the conduct of this procedure adverse results may be encountered. Among the above complications, most of them are treatable but are not anticipated hence there is a chance of aggravation of my condition and in rare circumstances, it may prove fatal despite the anticipated diagnosis and best treatment made available. Further Doctor has informed me that my

participation in this study would help in the evaluation of the results of the study which is a useful reference to the treatment of other similar cases in the near future, and I may be benefited in getting relieved of suffering or cure of the disease I am suffering.

The Doctor has also informed me that information given by me, observations made photoGraphs and video Graphs are taken upon me by the investigator will be kept secret and not assessed by a person other than me or my legal hirer except for academic purposes. The Doctor did inform me that though my participation is purely voluntary, based on the information given by me, I can ask for any clarification during treatment/study related to diagnosis, the procedure of treatment, result of treatment, or prognosis. At the same time, I have been informed that I can withdraw from my participation in this study at any time if I want or the investigator can terminate me from the study at any time from the study but not the procedure of treatment and follow- up unless I request to be discharged.

After understanding the nature of the dissertation or research, diagnosis made, and mode of treatment, I the undersigned Smt.

_____ under my full conscious state of mind agree to participate in the said research/dissertation.

Signature of the patient:

Signature of doctor:

Date: Place

ANNEXURE III

PERFORMA

NAME:

AGE:

INPATIENT NUMBER (I.P No.):

DATE OF ADMISSION :

ADDRESS AND PHONE NUMBER :

CHIEF COMPLAINTS:

HISTORY OF PRESENT ILLNESS:

HISTORY OF PRESENT PREGNANCY

MARITAL HISTORY:

OBSTETRIC HISTORY: G: P: L: A: D

LMP:

EDD:

POG:

DIAGNOSIS:

PERSONAL HISTORY

GENERAL PHYSICAL EXAMINATION:

PULSE: BLOOD PRESSURE: RESPIRATORY RATE:

TEMPERATURE:

HEIGHT: WEIGHT:

CARDIOVASCULAR SYSTEM:

RESPIRATORY SYSTEM:

PER ABDOMEN :

PRESENTATION:

INVESTIGATIONS :

INDICATION OF CESAREAN DELIVERY -

MODE OF DELIVERY OF PLACENTA:

CONTROLLED CORD TRACTION MANUAL

REMOVAL OF PLACENTA

CLOSURE OF SUBCUTANEOUS FAT- YES / NO

IF YES-SUTURE MATERIAL USED

TYPE OF SKIN CLOSURE SUBCUTANEOUS

MATTRESS

MATERIAL USED FOR SUTURING :

TOTAL DURATION OF SURGERY -

INTRA-OP COMPLICATIONS -

TOTAL DURATION OF HOSPITAL STAY –

INSPECTION OF THE WOUND -DAY2

DAY5

DAY7

WOUND - HEALED / NO

CATEGORY OF WOUND

CLASS I - SKIN

CLASS II-SKIN AND FASCIA

CLASS III-MUSCLES

CLASS IV-DEEP SPACE

- SEROUS DISCHARGE
- ERYTHEMA
- PURULENT EXUDATE
- SEPARATION OF DEEP TISSUES
- ISOLATION OF BACTERIA
- PUS
- C & S -
- ANTIBIOTICS
- REQUIRED SECONDARY SUTURING -
- SECONDARY SUTURING ON POD -

- SKIN SUTURING -
- DRAIN- PRESENT / ABSENT
- ADDITIONAL ANTIBIOTICS -
- HEALING
- SUTURES REMOVED ON POD -
- GAPING

DATE OF DISCHARGE -

SHRAVANTHI OBG

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ANNEXURE III ETHICAL CLEARANCE


BLDE
(DEEMED TO BE UNIVERSITY)
Declared as Deemed to be University u/s 3 of UGC Act, 1956
Accredited with 'A' Grade by NAAC (Cycle-2)
The Constituent College
SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE, VIJAYAPURA
BLDE (DU)/IEC/ 877/2022-23 10/4/2023

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this University met on **Saturday, 18th March, 2023 at 11.30 a.m.** in the **CAL Laboratory, Dept. of Pharmacology**, scrutinizes the Synopsis/ Research Projects of Post Graduate Student / Under Graduate Student /Faculty members of this University /Ph.D. Student College from ethical clearance point of view. After scrutiny, the following original/ corrected and revised version synopsis of the thesis/ research projects has been accorded ethical clearance.

TITLE: "CHLORHEXIDNE-ALCOHOL VERSUS POVIDONE-IODINE+ALCHOHOL AS PRE-OPERATIVE ANTISEPTIC FOR PREVENTION OF SURGICAL SITE INFECTION IN CESAREAN SECTION-A RANDOMIZED CONTROL TRIAL".

NAME OF THE STUDENT/PRINCIPAL INVESTIGATOR: DR. SHRAVANTHI SWAMY

NAME OF THE GUIDE: DR.ARUNA M.BIRADAR, PROFESSOR, DEPT. OF OBSTETRICS AND GYNAECOLOGY.

Dr. Santoshkumar Jeevangi
Chairperson
IEC, BLDE (DU),
VIJAYAPURA
Chairman,
Institutional Ethical Committee,
BLDE (Deemed to be University)
Vijayapura



Dr. Akram A. Naikwadi
Member Secretary
IEC, BLDE (DU),
VIJAYAPURA
MEMBER SECRETARY
Institutional Ethics Committee
BLDE (Deemed to be University)
Vijayapura-586103, Karnataka

Following documents were placed before Ethical Committee for Scrutinization.

- Copy of Synopsis/Research Projects
- Copy of inform consent form
- Any other relevant document

Smt. Bangaramma Sajjan Campus, B. M. Patil Road (Sholapur Road), Vijayapura - 586103, Karnataka, India.
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	Group	AGE (YRS)	COMPLAINTS	OBSTETRIC SCORE	GESTATIONAL AGE (WEEKS)	PRESENTATION	INDICATION	MODE OF PLACENTA DELIVERY	CLOSURE OF SUBCUTANEOUS FAT	SKIN CLOSURE	DURATION OF SURGERY	INTRAOP COMPLICATIONS	DURATION OF STAY (DAYS)	FOLLOWUP 2nd DAY	FOLLOWUP 7th DAY	WOUND	SUTURE REMOVAL	CATEGORY OF WOUND	DISCHARGE	ERYTHEMA	INDURATION	GAPING	PUS	CULTURE AND SENSITIVITY	OTHER ANTIBIOTICS	BACTERIA	SECONDARY SUTURING	DRAIN	SSI
2	Group A	18	PAIN ABDOMEN	G1	40	CEPHALIC	FAILED INDUCTION	CCT	NO	SUBCUTICULAR	90	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
3	Group A	23	PAIN ABDOMEN	G3P111	39.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	MRP	NO	SUBCUTICULAR	70	NIL	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4	Group A	31	PAIN ABDOMEN	G1	38	CEPHALIC	SEVERE OUGOHYDRAMIN	CCT	NO	SUBCUTICULAR	45	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5	Group A	19	PAIN ABDOMEN	G1	37.3	CEPHALIC	SEVERE OUGOHYDRAMIN	CCT	NO	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
6	Group A	24	PAIN ABDOMEN	G2P111	37.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	60	NIL	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
7	Group A	20	PAIN ABDOMEN	G2A1	37	CEPHALIC	SEVERE OUGOHYDRAMIN	CCT	NO	SUBCUTICULAR	90	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
8	Group A	22	PAIN ABDOMEN	G1	38.1	CEPHALIC	FETAL DISTRESS	CCT	NO	SUBCUTICULAR	60	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
9	Group A	21	PAIN ABDOMEN	G1	39.6	CEPHALIC	FETAL DISTRESS	CCT	NO	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	Group A	21	PAIN ABDOMEN	G2A1	39.2	BREECH	BREECH	CCT	NO	SUBCUTICULAR	80	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
11	Group A	30	PAIN ABDOMEN	G3P111A1	40	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	60	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
12	Group A	25	PAIN ABDOMEN	G4P111A2	39.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	65	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
13	Group A	22	PAIN ABDOMEN	G2P111	37.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	60	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
14	Group A	22	PAIN ABDOMEN	G1	39.5	CEPHALIC	SECOND STAGE ARREST	CCT	NO	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
15	Group A	23	PAIN ABDOMEN	G2P111	39.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	45	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
16	Group A	25	PAIN ABDOMEN	G2P111	39.5	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	90	THIN MECONI	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
17	Group A	22	PAIN ABDOMEN	G1	38.6	CEPHALIC	SEVERE OUGOHYDRAMIN	CCT	YES	SUBCUTICULAR	80	MINIMAL LIQU	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
18	Group A	24	PAIN ABDOMEN	G1	39.4	CEPHALIC	CPD	CCT	YES	SUBCUTICULAR	80	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
19	Group A	28	PAIN ABDOMEN	G2P111	39.5	CEPHALIC	SEVERE OUGOHYDRAMIN	CCT	NO	SUBCUTICULAR	60	NIL	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
20	Group A	28	PAIN ABDOMEN	G3P1D1	39	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
21	Group A	21	PAIN ABDOMEN	G1	38.5	CEPHALIC	FETAL DISTRESS	MRP	NO	SUBCUTICULAR	60	THICK MECONI	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
22	Group A	19	PAIN ABDOMEN	G2P1D1	38	CEPHALIC	PLACENTA PREVIA	MRP	YES	SUBCUTICULAR	60	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
23	Group A	21	PAIN ABDOMEN	G2P111	39.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	75	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
24	Group A	26	PAIN ABDOMEN	G2P111	37.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	60	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
25	Group A	32	PAIN ABDOMEN	G2P111	39.1	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	50	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
26	Group A	20	PAIN ABDOMEN	G1	40	CEPHALIC	SEVERE OUGOHYDRAMIN	CCT	YES	SUBCUTICULAR	45	NIL	3	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
27	Group A	24	PAIN ABDOMEN	G3P212	37.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	MRP	NO	SUBCUTICULAR	80	NIL	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
28	Group A	21	PAIN ABDOMEN	G2P111	37.5	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	80	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
29	Group A	19	PAIN ABDOMEN	G1	38.1	CEPHALIC	CPD	CCT	NO	SUBCUTICULAR	75	NIL	8	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
30	Group A	30	PAIN ABDOMEN	G3P111	38.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	70	PLASTERED ABD	8	NORMAL	NORMAL	HEALTHY	D8	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
31	Group A	26	PAIN ABDOMEN	G2P1D1	37.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	60	LUS THINNED C	8	NORMAL	NORMAL	HEALTHY	D8	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
32	Group A	25	PAIN ABDOMEN	G3P212	37	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	60	LUS THINNED C	5	NORMAL	NO	NO	NO	5	YES	NO	NO	NO	YES	YES	LINEZOLID	STAPHYLOCOCCUS AUREUS	YES	YES	DEEP
33	Group A	24	PAIN ABDOMEN	G2P111	37.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	55	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
34	Group A	19	PAIN ABDOMEN	G1	39.5	CEPHALIC	FETAL DISTRESS	CCT	NO	SUBCUTICULAR	45	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
35	Group A	24	PAIN ABDOMEN	G4P212A1	38.1	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	80	NIL	4	NORMAL	NORMAL	HEALTHY	D7	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
36	Group A	29	PAIN ABDOMEN	G3P2D1	39.5	CEPHALIC	FETAL DISTRESS	CCT	NO	SUBCUTICULAR	60	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
37	Group A	24	PAIN ABDOMEN	G3P21D1	37.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	70	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
38	Group A	18	PAIN ABDOMEN	G1	37.1	CEPHALIC	CPD	CCT	NO	SUBCUTICULAR	55	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
39	Group A	24	PAIN ABDOMEN	G3P111A1	37.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	65	MINIMAL LIQU	6	NORMAL	NORMAL	HEALTHY	D7	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
40	Group A	23	PAIN ABDOMEN	G1	38.3	CEPHALIC	FETAL DISTRESS	CCT	NO	SUBCUTICULAR	50	NIL	7	NORMAL	NO	NO	NO	5	NO	NO	NO	NO	YES	YES	CEFTRIAXONE	STAPHYLOCOCCUS AUREUS	NO	NO	DEEP
41	Group A	20	PAIN ABDOMEN	G1	40	CEPHALIC	FETAL DISTRESS	CCT	NO	SUBCUTICULAR	70	THICK MECONI	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
42	Group A	24	PAIN ABDOMEN	G2P111	38.5	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	65	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
43	Group A	21	PAIN ABDOMEN	G2A1	30.3	CEPHALIC	NPOL	CCT	YES	SUBCUTICULAR	70	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
44	Group A	25	PAIN ABDOMEN	G3P212	38.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	80	ADHESIONS	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
45	Group A	21	PAIN ABDOMEN	G1	39.2	CEPHALIC	FETAL DISTRESS	CCT	YES	SUBCUTICULAR	75	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
46	Group A	21	PAIN ABDOMEN	G1	37.2	CEPHALIC	CPD	CCT	NO	SUBCUTICULAR	70	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
47	Group A	29	PAIN ABDOMEN	G2P21D1	38.5	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	65	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
48	Group A	20	PAIN ABDOMEN	G1	38.3	CEPHALIC	FETAL DISTRESS	CCT	YES	SUBCUTICULAR	50	THICK MECONI	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
49	Group A	24	PAIN ABDOMEN	G2P111	37.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	50	ADHESIONS	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
50	Group A	34	PAIN ABDOMEN	G3P212	39.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	75	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
51	Group A	25	PAIN ABDOMEN	G1	39.6	CEPHALIC	FETAL DISTRESS	CCT	YES	SUBCUTICULAR	50	NIL	3	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
52	Group A	32	PAIN ABDOMEN	G3P212	38.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	MRP	NO	MATTRESS	50	ADHESIONS	3	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
53	Group A	20	PAIN ABDOMEN	G1	39.2	CEPHALIC	SEVERE OUGOHYDRAMIN	CCT	YES	SUBCUTICULAR	55	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	
51	Group A	25	PAIN ABDOMEN	G1	39.6	CEPHALIC	FETAL DISTRESS	CCT	YES	SUBCUTICULAR	50	NIL	3	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
52	Group A	32	PAIN ABDOMEN	G3P2L2	38.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	MRP	NO	MATTRESS	50	ADHESIONS	3	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
53	Group A	20	PAIN ABDOMEN	G1	39.2	CEPHALIC	SEVERE OLIGOHYDRAMIN	CCT	YES	SUBCUTICULAR	55	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
54	Group A	21	SAFE CONFINEM	G3A2	38.6	CEPHALIC	BAD OBSTETRIC HISTORY	MRP	NO	SUBCUTICULAR	60	NIL	8	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
55	Group A	22	SAFE CONFINEM	G6L2A3	37	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	55	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
56	Group A	24	SAFE CONFINEM	G2P1L1	37.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	MRP	YES	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
57	Group A	28	SAFE CONFINEM	G3P1L1A1	39	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
58	Group A	24	SAFE CONFINEM	G3P2L2	38.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	MATTRESS	75	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
59	Group A	26	SAFE CONFINEM	G6P3L3A2	37.3	BREECH	BREECH	CCT	YES	SUBCUTICULAR	80	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
60	Group A	23	SAFE CONFINEM	G3P1L1A2	37.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	90	LUS THINNED C	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
61	Group A	29	SAFE CONFINEM	G5P2L2A2	38.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	70	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
62	Group A	31	SAFE CONFINEM	G3P2L2	38.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	90	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
63	Group A	26	SAFE CONFINEM	G3P1L1A1	38.5	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	75	NIL	3	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
64	Group A	29	SAFE CONFINEM	G2A1	37	CEPHALIC	SEVERE OLIGOHYDRAMIN	MRP	YES	SUBCUTICULAR	60	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
65	Group A	26	SAFE CONFINEM	G1	39.2	CEPHALIC	SEVERE OLIGOHYDRAMIN	CCT	NO	SUBCUTICULAR	50	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
66	Group A	20	SAFE CONFINEM	G1	39.2	CEPHALIC	SEVERE OLIGOHYDRAMIN	CCT	YES	SUBCUTICULAR	60	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
67	Group A	23	SAFE CONFINEM	G2P1L1	38.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	80	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
68	Group A	24	SAFE CONFINEM	G2P1L1	38.2	CEPHALIC	MATERNAL REQUEST	CCT	NO	SUBCUTICULAR	70	NIL	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
69	Group A	30	SAFE CONFINEM	G2P1L1	38.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	50	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
70	Group A	33	SAFE CONFINEM	G3P1L1	39.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	45	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
71	Group A	24	SAFE CONFINEM	G3P1L1	38.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	65	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
72	Group A	24	SAFE CONFINEM	G4P2L2A1	38.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	90	UTERINE DEHS	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
73	Group A	24	SAFE CONFINEM	G3P1L1	38	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	80	NIL	8	NORMAL	NORMAL	HEALTHY	08	NORMAL	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
74	Group A	30	SAFE CONFINEM	G3A2	37.4	CEPHALIC	PRECIOUS PREGNANCY	CCT	YES	SUBCUTICULAR	90	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
75	Group A	27	SAFE CONFINEM	G4P2L2A1	37.5	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	80	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
76	Group A	32	SAFE CONFINEM	G2P1L1	37.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	65	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
77	Group A	21	SAFE CONFINEM	G3P2L2	37.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	50	LUS THINNED C	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
78	Group A	25	SAFE CONFINEM	G3P1L1	37.1	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	90	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
79	Group A	23	SAFE CONFINEM	G3P2L2	38	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	80	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
80	Group A	25	SAFE CONFINEM	G4P2L2A1	37.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	90	LUS THINNED C	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
81	Group A	28	SAFE CONFINEM	G3P1L1A1	39.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	80	ADHESIONS	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
82	Group A	24	SAFE CONFINEM	G3P2L2	38	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	70	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
83	Group A	29	SAFE CONFINEM	G3P2L2	39.2	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	90	LUS THINNED C	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
84	Group A	26	SAFE CONFINEM	G1	39.2	CEPHALIC	PRECIOUS PREGNANCY	CCT	NO	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
85	Group A	29	SAFE CONFINEM	G3P2L2	39.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	60	NIL	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
86	Group A	28	SAFE CONFINEM	G3P1L1A1	38.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	70	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
87	Group A	22	SAFE CONFINEM	G4P2L2A1	39.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	85	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
88	Group A	22	SAFE CONFINEM	G4P2L2A1	39.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	85	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
89	Group A	33	SAFE CONFINEM	G2A1	37.2	BREECH	BREECH	CCT	NO	SUBCUTICULAR	70	THICK MECON	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
90	Group A	26	SAFE CONFINEM	G2P1L1	38.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	70	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
91	Group A	25	SAFE CONFINEM	G3P1L1A1	39.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	80	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
92	Group A	26	SAFE CONFINEM	G3P2L2	38.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	70	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
93	Group A	27	SAFE CONFINEM	G5P4L2D2	39	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	70	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
94	Group A	30	SAFE CONFINEM	G4P1L1A2	39.4	CEPHALIC	MATERNAL REQUEST	CCT	YES	SUBCUTICULAR	60	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
95	Group A	22	SAFE CONFINEM	G3P2L1D1	38.3	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	YES	SUBCUTICULAR	70	LUS THINNED C	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
96	Group A	33	SAFE CONFINEM	G6P4L4A1	37	BREECH	PREVIOUS 1LSCS NOT W/	MRP	YES	SUBCUTICULAR	60	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
97	Group A	31	SAFE CONFINEM	G1	38.2	BREECH	BREECH	CCT	NO	SUBCUTICULAR	50	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
98	Group A	34	SAFE CONFINEM	G3P1L1	37.5	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	60	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
99	Group A	28	SAFE CONFINEM	G3P2L2	38	CEPHALIC	PREVIOUS 1LSCS NOT W/	MRP	NO	SUBCUTICULAR	50	LUS THINNED C	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
100	Group A	33	SAFE CONFINEM	G2A1	39.2	CEPHALIC	MATERNAL REQUEST	CCT	NO	SUBCUTICULAR	65	NIL	4	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
101	Group A	26	SAFE CONFINEM	G2P1L1	37.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	50	NIL	6	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
102	Group A	25	SAFE CONFINEM	G3P1L1A1	38.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	55	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
103	Group A	26	SAFE CONFINEM	G3P2L2	37.6	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	MATTRESS	55	NIL	4	NORMAL	NORMAL	NO	NO	1	YES	NO	NO	NO	YES	YES	NO	STERILE	NO	NO	SUPERFICIAL	
104	Group A	29	SAFE CONFINEM	G3P1L1A1	39.4	CEPHALIC	PREVIOUS 1LSCS NOT W/	CCT	NO	SUBCUTICULAR	50	NIL	7	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
105	Group A	20	SAFE CONFINEM	G2A1	38.6	CEPHALIC	MATERNAL REQUEST	CCT	NO	SUBCUTICULAR	40	NIL	5	NORMAL	NORMAL	HEALTHY	NO	NORMAL	NO	NO	NO									

