Effect of Vaginal Cleansing with Povidone Iodine Solution before Cesarean Section on Postoperative Endometritis Infection

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Abstract

Background: Cesarean section (CS) continues to be the surgical intervention most often performed in obstetrics, with a daily increasing frequency of use. The risk for all postpartum infections is increased in CS compared to vaginal delivery. Infectious complications developing in the aftermath of CS are one of the main causes of maternal morbidity. So, the aim of this study was to investigate the effect of vaginal cleansing with Povidone Iodine solution before cesarean section on postoperative Endometritis Infection . **Design**: A quasi- experimental design was utilized in this study. **Setting**: This study was conducted at the operating room of Obstetrics and Gynecologic Department in Beni-Seuf University Hospital from the period of May 2019 until August 2019. **The study Subjects** included 200 pregnant women undergoing elective cesarean delivery, who were selected by purposive sampling technique. then divided into control and study group 100 per each group. The study group receive vaginal cleansing before cesarean section by antiseptic iodine solution 10% and standard abdominal scrub. Control group receive standard abdominal scrub only. **Tool**s was used of data collection included; 1st tool: **Structured interview questionnaire** was designed by the researchers and included demographic characteristics and data related to the participants' clinical profile 2nd tool: **Postpartum follow-up checklist** to assess presence or absence of the post CS infectious morbidity such as; endometritis (lower abdomen pain and a smelly vaginal discharge), febrile morbidity, and incisional site infection.3rd tool: **Numerical rating scale (NRS)**. **Study results**: Shows there was statistically significant difference regards fever and a smelly vaginal discharge among both groups, while there was no statistically significant difference was found regards wound infection and lower abdomen pain. **Conclusion:** Preoperative vaginal cleansing using antiseptic iodine solution 10% was an effective practice for reducing post cesarean endometritis where overall post cesarean infectious morbidity rate was lower among study group compared to control those exposed to routine care alone; supporting the study hypothesis. **Recommendations:** Physicians and Nurses should be used antiseptic povidone-Iodine 10% or vaginal cleaning as regular practice before cesarean deliveries. Apply vaginal preparation with anti septic solution before C.S operation for high risk group for infection as premature rupture of membranes, diabetes, and anemia.

Key words: Efficacy, Vaginal Cleansing, Cesarean Delivery, Antiseptic A Povidone Iodine Solution, Postoperative Endometritis Infection

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Introduction

The most prevalent significant pro cedure is delivery of the worldwide caesa rean section (CS), For recently 30 years, the international healthcare community has considered the ideal incidence for CS to be between 10% and 15%. Approximately 25% of pregnant fe males in the UK undergo CS for their chil dren to be delivered. In England alone, thi s is equivalent to about 171,000 caesarean

sections per year**(Morton et al.,2018).**Cesarean section deliveries represent a large percentage of all births worldwide **(Boyle and Reddy,2013)** for example, in the US, cesarean delivery accounts 30% of all births and procedure is the most common method of major female surgery (**MaDorman et al., 2018).** Caesarean section rates in Egypt is 22percent, with higher rates in private hospitals **(Mohamed et al., 2015)**

Sepsis and post-natal infection have a significant impact on maternal mortality and morbidity, as well as on post-natal healing and maternal wellbeing. there are several primary sources of infection after CS including endometritis. For women with Caesarean range 5-20 times more vulnerable to infection than women with normal delivery of the vagina . After cesarean delivery, infectious complications are a major cause of maternal morbidity and may extend the hospitalstay. These include fever,swollen wounds and after pregency inflammation of the uterus lining **(Haas et al., &Mohamed, 2014).** Endometritis is the commonest complication as it records up to 27%, followed by clinically significant fever, which was reported as 5–24%, while the occurrence of wound infection is about 2–9% **(Magdy et al., 2017).**

The invention reveals a povidone iodine, which includes the following components: 10.0%-50.0% of polyvinyl pyrrolidone k30, 2.34%-11.44% of iodine, 1.17-5.72% of potassium iodide, 5.0-45.0% of a solvent n-propanol, 0.01%-10.0% of a stability auxiliary agent and the balance of water. The creation also discloses a preparation method of povidone iodine. The preparation method of povidone iodine delivered by the invention employs a solution method for complex of polyvinyl lpyrrolidone, iodine and additives under certain conditions, so as to prepare a povidone iodine solution; povidone iodine gained by complexation of povidone and iodine has good stability, meets the necessities of the medical disinfection industry on povidone iodine, and solves the problem of poor stability of povidone iodine. At the same time, povidone iodine prepared by water solution method is more appropriate for usage **(Haynes et al., 2019).**

Risk factors for endometries following CS include in the caesarean section labour and ruptured membranes with or without vaginal colonization with group B streptococcus**(Morton et al.,2018)** and the frequency of post cesarean section infection ranges from 7-20% depending on operating time, maternal body mass index, length of labor, number of vaginal exams during labor, blood loss amount, emergency or elective caesarean delivery and surgeon experience **(Mohamed,2013& Mohamed et al., 2015)**.

Post cesarean wound infection and endometritis continue to be a severe morbidity, in spite of use of strategies to avoid these complications in terms of patient pain, patient cost, antibiotic use and extended hospital stay. The risk of post cesarean infectious morbidity varies from 5-85 percent. Pathways are the most known risk factors for post cesarean endometries **(Mohamed et al., 2015).** Preoperative vaginal washing by povidone-iodine before hysterectomy and CS reduces the occurrence of postoperative infectious morbidity **(Haas, 2012).** Also **(Ameer, 2019)** showed that preoperative vaginal cleansing with povidone -iodine decreases the occurrence of post-cesarean endometritis.

Significant of the study:

Among developing countries, the rate of puerperal infection remains the

most common cause of morbidity and mortality. CS is the most important factor in the risk of puerperal infection with an estimated 5-20-fold rise in incidence (**Mohamed et al., 2015**). After CS (infectious morbidity is a significant problem that affects woman health and represents an economic burden. Usually post CS infectious morbidity seems in form of endometritis in 6% to 27%, febrile morbidity in 5% to 24%, and infection at the incisional site which happens in around 2% to 9% of post cesarean deliveries**.** Endometritis occurs 10 times post cesarean deliveries compared to vaginal births, It can be progressed to source of pelvic abscess, peritonitis, or even septicemia; which is of a great concern deliveries **(Marzouket al.,2019)**. Pelvic abscess, peritonitis, or even septicemia after cesarean delivery can have a tremendous impact on the postpartum woman's return to normal function and her ability to care for her baby. It can also cause health problems and sequelae that are deserving. Finding an easy and inexpensive way to reduce this risk could have a major impact on both developed and developing countries ' public health. There is a good evidence in the literature that preoperative vaginal sterilization with povidone – iodine is effective before Cs labor in decreasing the occurrence of postoperative infectious morbidity. Current data on the impact of such a measure on post-care infectious morbidity is unclear, however, as some studies have shown no significant effect**(Aref ,2019).**While other studies have reported a significant reduction in post-cesarean infections with the use of povidone-iodine solution**(Reid, Hartmann ,McMahon, Fry (2001) &Yildirim etal.,2012),** this has encouraged us to investigate the effectiveness of povidone-iodine vaginal preparation by 10 percent at post-CS infectious morbidity levels and to suggest its daily use if it is found to be effective.

Aim of the study:

To investigate effect of vaginal cleansing with povidone iodine solution before cesarean delivery on postoperative endometritis infection

Research hypothesis: The women who are undergoing vaginal cleansing by using antiseptic a povidone iodine solution prior to cesarean delivery will have less postoperative endometritis infection.

Materials and Method

Research design: Quasi-experimental design (randomized controlled trials)was utilized in this study

Research Setting : This study was conducted at the operating room of Obstetrics and Gynecologic Department in Beni-Seuf University Hospital from the period of May 2019 until August 2019.

Subjects of the study A convenience sample of 490 pregnant womens undergoing elective cesarean delivery were recruited in the study**.**

Inclusion criteria:-

1. Full term pregnant women.
2. Elective cesarean delivery
3. Age ranged between 20 -35 years.

Exclusion criteria:-

1.Women who are at risk for developing postpartum infection as premature rupture of membranes, diabetes mellitus, anemia and immune compromised status.

2.History of post cesarean section infection, obstructed labor, or preeclampsia

3.Women whose given history of being allergic to antiseptic iodine solution.

-The sample size was calculated using the following formula **Yamane ,(1967)**.

$$n = \frac{N}{1+N(e)^2}$$

Where: n= sample size, N = patients (490), e = margin error (0.05).

Sample size=220 pregnant women

The sample size was (220) pregnant women. The researchers excluded 20 pregnant women of a pilot study from the sample. The subjects were divided into two groups: **Group (A):** study group: consisted of 100 pregnant women who receiving vaginal cleansing prior to cesarean section by antiseptic a povidone iodine solution 10%and standard abdominal scrub. **Group (B):** Control group: consisted of 100 pregnant women who receiving standard abdominal scrub only.

Tools of Data Collection:

Data were collected by three tools as the following:

I. Structured interview questionnaire; which headed into two sections

Part I: Participants' Obstetric data: to assess (age, para, gravid, weight, Gestational age at delivery, Preoperative Hb and Postoperative hospital stay).

Part II: Participants' clinical profile: to assess (C.S type and time, duration of wash before CS, method of wash and washing places)

II. Postpartum follow-up checklist: It developed by the researcher to record the It was developed by the researchers and completed at the first postpartum follow-up visit (i.e., at the 10^{th} postpartum day). It was aimed to assess presence or absence of the post CS infectious morbidity: endometritis, febrile morbidity, and incisional site infection. as (fever, wound infection, lower abdomen pain and vaginal discharge).

-Endometritis was evident as "Postoperative fever of 38.4_C or more, connected with uterine tenderness and offensive smelling lochia requiring intravenous antibiotic treatment".

-Postoperative fever was detected by "Oral temperature of 38_C or more after first day of surgery; in absence of clinical causes of infection such as breast engorgement or urinary tract infection".

- Wound infection was known by occurrence of erythema or occurrence of abdominal incision disruption, with purulent discharge from incision site that requires antibiotics and wound care.

Numerical rating scale (NRS)

It means (verbal rating scale (VRS); visual analogue scale. VAS for studied groups; adopted from **Hockenberry & Wilson, (2015) and Song et al., (2016);** it was used to assess perence of pain. It consisted of a line divided by numbered points ranged from (0-10) consisting of six cartoon faces that range from a neutral expression (0 no pain) to a screaming face (10 hurts more than).

Research process

Validity of the study: Tools used in the study were developed by the researchers after reviewing of the current local and international related literatures using books, articles and scientific magazines. This helped them to be acquainted with the problem, and guided them in the process of tools' designing. Tools was reviewed by jury of 3 expertise's in the field of the study to test its contents and face validly.

A permission letter was issued from the Dean of Beni-Suef Faculty of Nursing to the directors of the research settings. The researcher obtained official approval from the administrators of the study settings to carry out the study. A clear explanation was given about the aim, nature, importance, and expected outcomes of the study.

A Pilot study A pilot study was conducted on 20(10%) woman from the a aforementioned setting to measure the feasibility of the study setting , content validity of the tools and time required for the completion of each tool. Results obtained were useful in appraisal and modification of the tools; these subjects were later excluded from the study sample.

Ethical consideration is respected. Oral consent was obtained from each study participant after explanation of the study aim and benefit in each study setting. The study subjects were interviewed individually and reassured that all data would be confidential and used only for research purpose. Participants were also told of their right to withdraw from the study without providing any reason at any time.

Field work

- Collection of data covered a period of 4 months from beginning of May 2019 until end of August 2019. The researcher attained predetermine setting 3 days per week(Saturday, Monday, and Wednesday) from 9 am to 2 pm..

- The study and control group were assigned; where the odd numbers were recruited as study group and the even numbers are recruited as control group.

- Women were assessed and their medical records were reviewed according to inclusion and exclusion criteria, maternal demographic details were recorded along with the indication of caesarean section, the suitable cases were asked to give written consent for participation in study.

The present clinical experimental was accomplished by passing through three phases: Initial phase, implementation phase, and evaluation of the studied women outcomes phase.

(1) Initial phase

At waiting area of operating room, each pregnant woman allocated for elective CS was interviewed. Aim and nature of the study were explained and informed written consents were signed from the eligible pregnant mothers. At the same phase, the group’s allocation was recognized.

(2) Implementation phase

In this phase, subjects of the control group were received the

traditional preoperative care, while subjects of the study group were subjected to preoperative vaginal cleansing using antiseptic a povidone iodine solution 10%; in addition to the traditional care.

a. The traditional preoperative care

The traditional preoperative care involves the abdominal skin scrub, which was done according to the following steps:

1) prepare sterile bowel with 30 ml povidone-iodine10%, 2) after anesthetizing the studied pregnant woman and inserting the Foley's catheter, abdominal scrub was done by the scrubbed surgeon in form of strong rub of the abdominal incision area using

sterile gauze soaked in povidone-iodine 10% solution. It was continued around one to two minutes; to ensure free of dirt, sweat, and skin microorganisms, and 3) the disinfected skin area was rubbed with another sterile gauze. Prophylactic intravenous antibiotic was given immediately before skin incision. It is usually 1 gram Cefotaxime. Thereafter, the cesarean section operation was started as lower part incision without any intervention over the traditional care.

b. Care of the study group

Subjects of the study group were received the traditional care in addition to vaginal cleansing with povidone-iodine10% solution. After anesthetizing the studied pregnant woman and inserting the Foley's catheter, vaginal cleansing was done by the scrubbed nurse researcher; who was aware about group allocation and did not involve in incisional site assessment. The researcher divided the studied woman into two groups: **Group (A):** consisted of 50 pregnant women who receiving vaginal cleansing prior to cesarean section by antiseptic a povidone iodine solution 10%immediately 30s.before skin incision by sponge sticks and **Group (B):** 50 of them receiving vaginal cleansing immediately 60s.before skin incision by douches with standard abdominal scrub. The vaginal cleansing was done by preparing a sterile bowl with 20 ml povidone-iodine10% solution.

- The reseachers Exclued the mothers who suffering from fever due to any others problems for example (mastitis, breast engorgement and phlebitis) from the studied sample during follow up.

(3) **The evaluation phase**

The study follow up (i.e., endometritis, fever, abdominal pain and surgical site infection) were evaluated at the 10th day postpartum; where the adhesive tape covering the incision detached and the incision site was exposed for assessment.

Statistical Analysis Statistical Package for Social Sciences (SPSS) version 17.0 was used for quantitative data analysis. Quality control was done at the stages of coding and data entry. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Qualitative variables were compared using T test and Correlation (r) test. Cronbach's α (alpha) is used for test score reliability measure of sample Statistical significance was considered at p-value <0.05, highly significant difference obtained at $P < 0.0l$ and non significant difference obtained at $P > 0.05$.

Results

Table (1) presents data related to general and anthropometric measure between intervention and control groups, there was no statistically significant difference between both groups regarding to maternal age, gravid and Para p value > 0.05. While there was highly statistically significant difference between both groups regarding to maternal weight p = 0.001

Regarding to types and causes of cesarean section: **Table (2)** shows (41%) of intervention group had primary CS compare to (45%) of control group and (59%) of intervention group had secondary Cs compare to 55% of control group there no statistically significant difference was found. Also this table shows that the most common cause of CS is previous Cs (40%) of intervention group compare to(45%) of control group and(27%) of intervention group had malpresentation and position compare to (25%) of control group. There no statistically significant difference was found between both groups

Table (3) shows no statistically significant difference between both groups regarding to cesarean section time.

Fig 1 shows that duration of hospital stay ranged from one to two days. About 92% of mother in intervention group stay one day compare to 88% in control group .There was no statistically significant difference between both groups regarding hospital stay**.**

Table (4) shows that there was statistically significant difference regards fever and a smelly vaginal discharge among both groups. While there was no statistically significant difference found regards wound infection and Lower abdomen pain among both groups.

Table (5) shows that there was highly statistically significant difference regards fever, wound infection, pain and vaginal discharge among studied group in duration of wash before CS and method of wash.

Table (1): General Data and anthropometric Measure between Intervention and Control Groups:

Variable	**Control group (100)**	**Study Group (100)**	**T test**	P value
Age Mean± SD	**28.230±4.564**	**29.210±4.546**	**0.04**	>0.05
Gravid Mean± SD	**1.560±0.761**	**1.570±0.724**	**0.2**	>0.05
Para Mean± SD	**1.340±0.522**	**1.360±.545**	**0.5**	>0.05
Weight Mean± SD	**83.210±9.710**	**79.230±10.680**	**2.7**	>0.05
Gestational age at delivery (weeks) Mean± SD	38.5 ± 1.7	38.3 ±1.4	**2.17**	>0.05
Preoperative Hb (gm/dl) Mean± SD	10.8±1.4	10.9 ±1.6	**0.08**	>0.05
Postoperative hospital stay (days) Mean± SD	3.4±1.2	2.8±1.4	**14**	>0.05

Table (2): Comparison between Both Groups as Regards Types and Causes of Cesarean Section

Variable	Control group (100) NO	%	Study Group (100) NO	%	X	P value
C.S Type						
Primary	45	45.0	41	41.0		
Secondary	55	55.0	59	59.0	2.96	>0.05
Causes of CS						
Previous cs	45	45.0	40	40.0		
Malpresentation or position	25	25.0	27	27 .0	2.8	>0.05
Maternal distress	12	12.0	8	8.0		
Fetal distress	7	7.0	10	10.0		
Premature rupture of membranes	5	5.0	7	7 .0		
Suspected Macrosomic	6	6.0	8	8.0		

Table (3): Comparison between both Groups as Regards Cesarean Section Time, Duration of wash, Method of wash and Washing places

Variable	Control group (100)	Study Group (100)	T test	P value
Cs Time				
Mean± SD.	40.160±12.515	41.580±14.714	t=0.74	>0.05

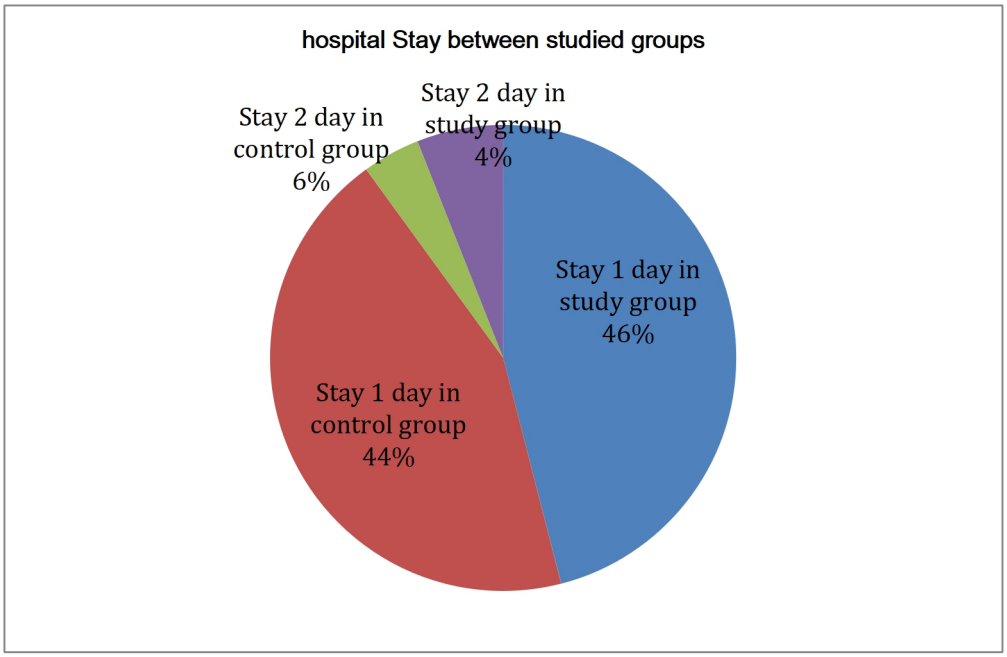

Fig (1): Comparison between both groups as regards hospital stay

Table (4):Comparison between both Groups as Regards Post operative Fever, Wound Infection, pain and vaginal discharge.

Variable	Control group (85)		Study Group (92)		X	P value
	NO	%	NO	%		
Fever	23	27.1	13	14.1	6.1	0.001
Wound infection	11	12.9	5	5.4	1.23	>0.05
A smelly vaginal discharge	12	14.1	6	6.5	4.86	0.001
Lower abdomen pain	10	11.7	5	5.4	1.11	>0.05

Table (5): Comparison between Duration of Wash before CS and Method of Was has Regards Post Operative Fever , Wound Infection, Pain and Vaginal Discharge for Studied Group.

Variable	Study Group		P value
	Method of wash and Duration of wash before CS		
	Sponge stick for 30s(n=50)	Douche for 60s (n=50)	
Fever	2.1	12.0	**< 0. 01**
Wound infection	0.0	5.4	**< 0. 01**
A smelly vaginal discharge	1.0	5.5	**< 0. 01**
Lower abdomen pain	1.0	4.3	**< 0. 01**

Discussion

Postpartum morbidities such as wound infection and endometritis also

complicate the operation of the cesarean section. Such morbidities cause pain and discomfort, delay in returning to normal function**.** The endometritis cause is frequently ascending of the upper genital tract by cervicovaginal flora. During cesarean deliveries, these bacteria are responsible for antibiotic prophylaxis failure. Furthermore, some prophylactic antibiotic regimens are not effective and after surgical prophylaxis, the vagina may colonize with resistant organisms. **(Mohamed et al., 2015).** The issue of using preoperative vaginal washing is not recent and it was previously used since the early seventies prior to CS, abdominal hysterectomy and was proved to be associated with lower postoperative infectious morbidity, as well as, documented decreasing in the bacteria count in vagina by at least 98% with povidone iodine solution (**Madny & Ahmed.,2011).**

There are different methods, to decrease the risk of infection. These include preoperative antiseptic vaginal douching on the morning of surgery, wipes, sponges, etc. with any type of antiseptic solution (povidone iodine, chlorhexidine, etc). The intervention of vaginal cleansing is a safe and very quickly perfect procedure that can easily be done before abdominal scrub **(Hass et al., 2014).** At the present time, there is no clear recommendation for or against vaginal cleansing before cesarean delivery. So, The aim of this study was to investigate the efficacy of vaginal cleansing before cesarean delivery in reducing postoperative morbidity.

The results of the study showed that using antiseptic povidone-iodine solution for cleaning of the vagina before cesarean section operation decreased the occurrence of postpartum morbidity as fever, wound infection, lower abdomen pain and vaginal discharge. This findings supported the study hypotheses that the women who are undergoing vaginal preparation with antiseptic solution (povidone-iodine) before cesarean section will have less post partum morbidity. The results of the present study showed that general data of the study subjects as age, gravid and para were not show any significant difference between control and study group. This insignificant difference between the general and obstetric characteristics data of both groups are reported by many studies **Hayat et al (2014), Mohamed et al., (2015).**

Concerning to Postoperative fever and a smelly vaginal discharge study findings shown that there was statistical significant difference between study and control group. These findings were in agreement with **Hayat et al (2014)** who study the effect of vaginal cleaning before cesarean delivery to reduce post cesarean section &postpartum infection and founded that there was statistically significant increase in temperature of control group in comparison to study group and stated that Vaginal cleansing with povidone iodine solution reduces the risk of post-cesarean endometritis from 8.3% in control groups to 4.3% in vaginal cleansing groups. ore over **(Tewfik, et al., 2015)** who study Preoperative vaginal preparation using povidone iodine versus chlorhexidine solutions in prevention of endometritis in elective cesarean section and mentioned that,there was a significantly higher rate of postoperative fever in group A (Povidone Iodine) compared to group B (Chlorhexidine group) (13 (28.3%) versus 4 (8.5%); respectively), while the rates of endometritis and wound infection were higher in group A (Povidone Iodine) compared to group B (Chlorhexidine group), but this difference was statistically insignificant therefore this result in the same line of current study

findings that has been mentioned, there was no statistically significant difference found regards wound infection and Lower abdomen pain among both groups. Also study results in the same line with **Ried et al (2001)** who study effect of vaginal preparation on post cesarean infectious morbidity and stated that 7.2% of samples under study had oral temperature elevated to 37.7 of or more than after the day of surgery.

While study results were in disagreement with **Ameer., (2019**) who evaluate the risk of post cesarean endometritis with preoperative vaginal preparation and reported that there was no measurable effect of a vaginal scrub on the development of postoperative fever. Additionally **Tewfik, Ibrahim, Hanafi, Fahmy, Khaled & Ibrahim., (2015)** who study Preoperative vaginal preparation using povidone iodine versus chlorhexidine solutions in prevention of endometritis in elective cesarean section and indicated that, use of chlorhexidine rather than povidone iodine was significantly associated with 3-fold reduction in the risk of post-operative fever.

In relation to fever, wound infection, lower abdomen pain and a smelly vaginal discharge study findings revealed that the rate of fever, wound infection, lower abdomen pain and vaginal discharge were lower in the study group than control group and the difference is not statistically significant in wound infection and lower abdomen pain while the difference is highly statistically significant in fever and vaginal discharge therefore according to the reseachers` opinion that, the povidone-iodine solution has a significant role in prevent or reduce post partum morbidity such as (fever, wound infection, lower abdomen pain and a smelly vaginal discharge) after Cs. These study results were in agreement with **Haiyan et al (2020)** who study Optimization of Cleaning Management Improves the Efficiency of the Continuous Surgery and reported that scientific cleaning management can significantly improve the efficiency of the operation, prevent the spread of bacteria in the operating room, improve the efficiency of the operating room, and thereby increase surgeon and patient satisfaction. Additionally **Marzouk, Emarah & Zaitoun,(2019) who reported that** assessment of the incisional wound revealed lower overall post cesarean section infectious morbidity rate among study group compared to those received conventional care (9.0% vs. 20.2% respectively; 2 = 4.50, p = .034). Endometritis rate was significantly lower among the study group subjects equated to those of the conventional care group (2.2% vs. 10.1% respectively; _2 = 4.75, p = .029), meanwhile febrile morbidity and surgical site infection rates showed non-significant reduction in favor to the study group subjects (p = .469 and .700 respectively). This findings supported the study hypotheses that the women who are undergoing vaginal preparation with antiseptic solution (povidone-iodine) before cesarean section will have less post partum morbidity infection.

In relation to fever, wound infection, lower abdomen pain and a smelly vaginal discharge study results shown that the rate of fever, wound infection, lower abdomen pain and vaginal discharge were lower in between the studied group by using sponge stick for 30 s. and there was highly statistically significant difference regards fever , wound infection, pain and vaginal discharge among studied group in duration of wash before CS and method of wash. These study results were in agreement with **Caissutti et al (2017)** who study Vaginal Cleansing Before Cesarean Delivery A Systematic Review

and Meta-analysis and reported that Vaginal cleansing immediately before cesarean delivery in women in labor and in women with ruptured membranes reduces the risk of postoperative endometritis and recommend preoperative vaginal preparation before cesarean delivery in these women with sponge stick preparation of povidone– iodine 10% for at least 30 seconds . This findings supported the study hypotheses that the women who are undergoing vaginal preparation with antiseptic solution (povidone-iodine) before cesarean section will have less post partum morbidity infection. So according to the researchers'` opinion that, the povidone-iodine solution, duration of wash and method has a significant role in prevent or reduce post partum morbidity infection such as (fever, wound infection, lower abdomen pain and a smelly vaginal discharge) after Cs.

Interpretation of the study findings suggests that a preoperative vaginal scrub with antiseptic povidone iodine solution 10% decreases the risk of post-cesarean fever and endometritis. This intervention, however, does not seem to reduce the risk of postoperative wound infection. Differences in reported postoperative morbidities rates could be attributed to the technique and materials used for the vaginal preparation itself or the amount of antiseptic used for the preparation might affect infectious outcomes

Conclusion

Study concluded that using antiseptic povidone-iodine 10% for cleaning of the vagina before cesarean section operation decreased the occurrence of postpartum morbidity as fever and endometritis.

Recommendations

- Physicians and Nurses should be used antiseptic povidone-iodine 10% or vaginal cleaning as regular practice before cesarean deliveries.

- Apply vaginal preparation with anti septic solution before C.S operation for high risk group for infection as premature rupture of membranes, diabetes, anemia.

Conflict of interest

There were no conflicts of interest.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article

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