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FREQUENCY AND RISK FACTORS ASSOCIATED WITH PUERPERAL SEPSIS IN WOMEN DELIVERED IN KHALIFA GULNAWAZ TEACHING HOSPITAL BANNU

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Abstract

Introduction: Worldwide complications related to pregnancy and childbirth is a major public health concern. Approximately 60% of these maternal deaths occur either during delivery or early postpartum period. One death occurs every 40 minutes in Pakistan during pregnancy or in postpartum period due to complications.

Objective: To determine the frequency and risk factors associated with puerperal sepsis in women delivered in Khalifa Gulnawaz Teaching Hospital, Bannu.

Study design: Descriptive, Cross-sectional

Study setting: Gynecological department, Khalifa Gulnawaz Teaching Hospital Bannu.

Study duration: 09 January 2023 to 09 June 2023.

Subject and methods: This study was conducted on 165 patients in having age range 18-40 Years visiting within 42 days after delivery either diagnosed with puerperal pyrexia on clinical examination and relevant investigations. The frequency and risk factors associated with puerperal sepsis was determined

Results: This study was conducted on 165 patients. The mean age of the patients was 29.47±6.44 years. The frequency of puerperal sepsis in our study was 18 (10.9%). According to the risk factors associated with puerperal sepsis, anemia was 15 (83.3%), prolonged rupture of membranes was 16 (88.9%) and prolonged labor was 3 (16.7%).

Conclusion: From our study we conclude that the frequency of puerperal sepsis in women delivered in Khalifa Gulnawaz Teaching Hospital Bannu, was 18 (10.9%), the risk factors associated with puerperal sepsis were anemia 15 (83.3%), prolonged rupture of membranes 16 (88.9%) and prolonged labor 3 (16.7%).

Keywords: puerperal sepsis, risk factors, anemia, prolonged labor

Introduction:

Worldwide complications related to pregnancy and childbirth are a major public health concern.[1] Approximately 60% of these maternal deaths occurs either during delivery or early postpartum

period.[2] One death occurs every 40 minutes in Pakistan during pregnancy or in postpartum period due to complications.[2]

Puerperal sepsis is one of the leading cause of maternal mortality and morbidity after postpartum hemorrhage and pre-eclampsia worldwide.[3] About 94% of these complications occur in developing countries.[4] In all settings Puerperal sepsis is an important preventable condition.[5] According to WHO puerperal sepsis is defined as genital tract infection occurring at any time between the onset of rupture of membranes or labor and 42 days after the delivery and which is associated with two or more of the following: pelvic pain, fever, abnormal vaginal discharge, abnormal smell / foul discharge or delay in involution of uterus.[6] Additionally, WHO has introduced the term puerperal infections, which includes non-genital infections in the obstetric population like breast engorgement and infection of wound site.[7, 8]

Severity of infection directly correlates with increased mortality, 16.7% for sepsis, 25-30% for severe sepsis and around 40-70% for septic shock in general population.[9] In a study from Kenya prevalence of puerperal sepsis was 12.2%. [10] The risk factors observed for puerperal sepsis were anemia (89%) [10], rupture of membrane (97%), and prolonged labor (16%) [10,2].
The rationale of my study is to find the prevalence and risk factors associated with puerperal sepsis. As puerperal sepsis is among the preventable causes of maternal deaths, therefore by producing awareness regarding self-hygiene in patients, following strict aseptic surgical approach and providing good post-operative care can reduce its prevalence and associated morbidity and mortality. The key to management of puerperal sepsis is early recognition, aggressive resuscitation, antibiotic administration and control of source of infection.

Materials and methods:
Settings: gynecological department, Khalifa Gulnawaz Teaching Hospital Bannu.

Duration of study: 09 January, 2023 to 09 July, 2023.
Sample size: The sample size was calculated using who sample size calculator according to the following parameters:
- Anticipated proportion of puerperal sepsis: **12.2%**[10]
- Confidence level: 95%
- Absolute precision required: 5%
- Sample size: **165**.

Study design: Descriptive, cross-sectional
Sampling technique: Non-probability consecutive sampling
Inclusion criteria:
- Age range 18-40 years
- Women visiting within 42 days after delivery either diagnosed with puerperal pyrexia on clinical examination and relevant investigations.

Exclusion criteria:
- Women who are severely ill and unable to communicate,
- Women with disease like malaria, eclampsia, typhoid fever, and covid-19 will be excluded from this study.

Data collection procedure:
The study was conducted after obtaining approval from hospital's ethical and research committee and research department of cpsp karachi. All women presented to out-patient department of lady reading hospital Peshawar within 42 days of delivery and delivered in this hospital, the purpose and benefit

of the study were explained to them. A questionnaire was filled by taking their detailed history and examinations. All suspected women were assessed for puerperal sepsis and the associated risk factors as per the operational definition were evaluated. This entire evaluation was assessed under the monitoring of obstetrician with minimum 3 years of post-fellowship experience. The acquired information related to patients was recorded on a pre-defined proforma.

Data analysis procedure: -

Statistical analysis of data was performed using spss software version 22. Mean and standard deviation were calculated for numerical variables like age, weight, height, and BMI. Frequency and percentage were calculated for categorical variables like puerperal sepsis, risk factors, education status, and occupation status.

Results:

This study was conducted on 165 patients. The mean age of the patients was 29.47±6.44 years. The mean height of the patients was 1.64±0.02 meter. The mean weight of the patients was 67.05±5.68 kg and the mean bmi was 24.94±2.22 kg/m^2 (table 1). According to age distribution there were 86 (52.1%) patients in the age group of 18 to 30 years while 79 (47.9%) were in the age group of 31 to 40 years (figure 1). The frequency of puerperal sepsis in our study was 18 (10.9%) (Figure 2). According to the risk factors associated with puerperal sepsis, anemia was 15 (83.3%), prolonged rupture of membranes was 16 (88.9%) and prolonged labor was 3 (16.7%) (Table 2).

Table 1 Descriptive statistics (n = 165)

Variables	Mean	Std. Deviation
Age (Years)	29.47	6.444
Height (Meter)	1.6401	.02883
Weight (kg)	67.05	5.688
BMI (kg/m^2)	24.9441	2.22545

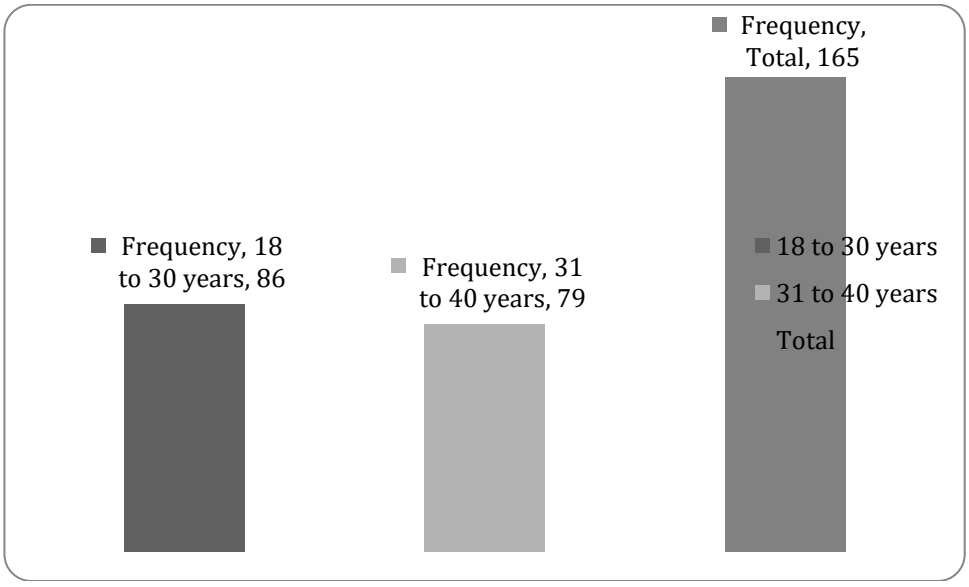

Figure 1: Age distribution

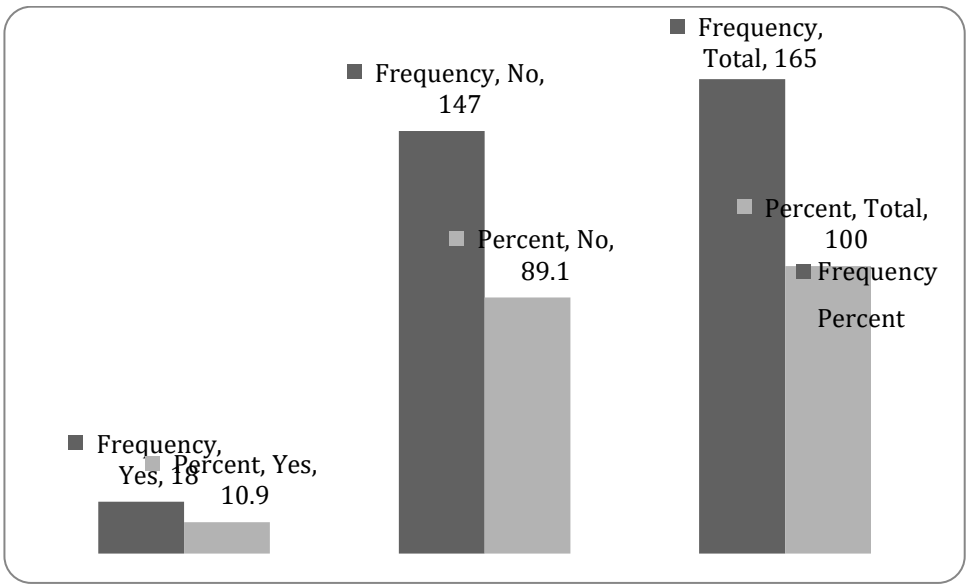

Figure 2: Frequency of puerperal sepsis

Table 2 Frequency of risk factors associated with puerperal sepsis

Risk factors associated with puerperal sepsis		Puerperal sepsis			
		Yes		No	
		Frequency	Percentage	Frequency	Percentage
Anemia	Yes	15	83.3%	78	53.1%
	No	3	16.7%	69	46.9%
Prolonged rupture of membranes	Yes	16	88.9%	79	53.7%
	No	2	11.1%	68	46.3%
Prolonged labor	Yes	3	16.7%	19	12.9%
	No	15	83.3%	128	87.1%

Discussion

Puerperal sepsis is a life-threatening condition defined as organ dysfunction due to infection during pregnancy, childbirth, abortion, or after delivery. Postpartum infection can occur after the delivery, which has been reported as the leading cause of maternal morbidity and mortality in developing countries.[11]

Between 2003 and 2009, about 73% (1,771,000) of all maternal deaths worldwide were from direct obstetric causes, and puerperal sepsis contributed to 10.7% (261,000) of all maternal deaths. The number of deaths from puerperal sepsis has decreased significantly in high-income countries but still accounts for the highest number of deaths in countries with limited resources. It causes at least 75,000 maternal deaths every year, mostly in low-income countries. The incidence of postpartum sepsis is relatively low in high-income countries (between 0.1 and 0.6 per 1,000 births); it is nonetheless an important direct cause of maternal mortality (10). But in developing regions such as sub-Saharan Africa and Southern Asia, major maternal deaths were due to postpartum sepsis.[12]

Pre-existing maternal illnesses like (malnutrition, diabetes, obesity, severe anemia, bacterial vaginosis, and group B streptococcal infections), prolonged rupture of membranes, multiple vaginal examinations, manual placental removal, and cesarean section were significant factors associated with postpartum sepsis.[13]

Prophylactic use of antibiotics for high-risk obstetric conditions such as PROM, meconium-stained amniotic fluid, perineal tears, manual placental removal, operative vaginal delivery, and cesarean section, and use of minor routine procedures (such as perineal shaving) are recommended practices to prevent morbidity and mortality caused by puerperal sepsis.[14]

Risk factors leading to puerperal sepsis are varied, including anaemia and other pre-existing maternal conditions, obstetric issues such as obstructed labour, health service factors such as poor hygiene and aseptic technique, and community factors such as socioeconomic status. A better understanding of the determinants of puerperal sepsis is crucial in identifying factors that facilitate infection and in forming strategies for prevention. The risk pertained by overweight and obese mothers is of increasing concern as the prevalence of obesity is rising in developing countries, particularly amongst women.[15] Pre-existing reproductive tract and urinary tract infections can develop into sepsis following delivery, therefore detection and treatment during pregnancy may reduce the prevalence of puerperal sepsis. Poor glycaemic control in gestational diabetes is suggested to increase the risk of postpartum infection, which would also require screening and effective management. A study identify unwanted pregnancy as a risk factor for sepsis, which may be attributed to decreased pregnancy care and attention and reduced attendance to antenatal care. Other maternal risk factors identified include the extremes of ages (35 years), parity (nulliparity or high parity) and adverse obstetric history.[16]

Risk factors that facilitate infection around the time of delivery include prolonged rupture of membranes and a long duration of labour, as the cervix remains open for a lengthened time and natural barriers to ascending infections from the vagina are impaired. Infection control measures are needed to prevent unhygienic practices around the time of delivery, such as putting a hand into the vagina or using unclean material to staunch the flow of lochia. Other determinants during labor include intrapartum bleeding, perineal tears and stillbirth.[17]

Health service factors associated with puerperal sepsis and other postpartum morbidities include poor utilization of antenatal care resulting in an unbooked status at delivery [3], and limited access to health facilities for delivery. Antenatal care is beneficial in screening and treating complications such as anemia, vaginal infections and urinary tract infections, as well as raising awareness of the need for care at delivery. It is suggested that facilities are more attentive to aseptic measures that may not be performed in home births, such as hand washing, use of a clean delivery service, clean cord cutting, perineal hygiene and providing antibiotics after delivery. This highlights the important role of comprehensive good-quality antenatal and delivery services in reducing the prevalence of puerperal sepsis.[18]

In our study we observed that the frequency of puerperal sepsis was 18 (10.9%), our results are similar with a study which reported frequency of puerperal sepsis 12.2%.[10] Regarding the risk factors we observed that prolonged rupture of membranes was the leading risk factors for puerperal sepsis followed by anemia, similar finding have been reported by another study[2] was well.

Conclusion

From our study, we conclude that the frequency of puerperal sepsis in women delivered in Khalifa Gulnawaz Teaching Hospital, Bannu was 18 (10.9%), the risk factors associated with puerperal sepsis were anemia 15 (83.3%), prolonged rupture of membranes 16 (88.9%) and prolonged labor 3 (16.7%).

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