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Original Research Article

Evaluation of Risk Factors & Maternal and Perinatal Outcome in Puerperal Pyrexia: A Prospective Study

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Abstract

Background & Method: The present study is conducted with an aim to Evaluate risk factors & maternal and perinatal outcome in Puerperal Pyrexia - A Prospective Observational Study carried out in the department of Obstetrics and Gynaecology at Government Medical College Ratlam. Prolonged labour, caesarean section, wound infection, septicemia, UTI, endometritis are the most common etiology and risk factors of puerperal pyrexia globally and Indian studies which ranged between 4 to 80%. Therefore, we considered 20% probability of risk factors with 6.4% marginal error (precision). At 95% confidence limit, 5% alpha (type I error) and 80% power (Beta), this accumulate 300 number required. Finally we planned to enroll 300 women with puerperal pyrexia in the study.

Result: Age wise distribution of puerperal pyrexia among women which revealed that about two third (71%) of the subjects were age between 20 to 30 years followed by >30 years and least under 20 years of age. majority of the women were unbooked (74.3%) and rest 25.3% were booked. majority of the cases (76.2%) were no growth in culture report and 14.6% cases were E. coli, 4.6% cases were Klebsilla species, 2.6% cases were multiple gram negative bacilli, 2% were Staphylococcus aureus. majority of newborn (83.3%) were live born and discharge home, 11.3% were early neonatal death and 5.3% were still birth and the difference was statistically significant (P<0.0001).

Conclusion: Most common cause of puerperal pyrexia in our study is urinary tract infection (this may be attributed to improper asepsis during catheterization), followed by pain in breast or breast engorgement, endometritis, wound infection, Risk factor for women who developed bacteriuria were primiparity, cesarean delivery, perineal laceration, oxytocin induced or augmented labour, operative vaginal delivery, catheterization and prolonged labour. Difficulties in breastfeeding, cracked nipples were also contributory factors into developing fever in Puerperium period. The route of delivery is significant risk factor for development of uterine infection. Risk increases with prolong membrane rupture, prolong labor and multiple vaginal examination.

Keywords: Risk, Maternal, Perinatal & Puepral Pyrexia.

Study Designed: A Prospective Observational Study.

Introduction

Pregnancy is a unique, exciting and often joyful time in a woman's life, as it highlights the woman's amazing creative and nurturing powers while providing a bridge to the future. Pregnancy comes with some cost, however, for a pregnant woman needs also to be a responsible woman so as to best support the health of her future child. The growing fetus depends entirely on its mother's healthy body for all needs. Consequently, pregnant women must take steps to remain as healthy and well-nourished as they possibly can. Pregnant women should take into account the many health care and lifestyle considerations. [1]

Puerperium is a time of great importance for both the mother and the newborn, it is an aspect of maternity care that has received relatively less attention compared with pregnancy and delivery. Majority of the alarming complications arise immediately following delivery. Puerperal pyrexia and sepsis are among the leading causes of preventable maternal mortality and morbidity, not only in developing countries but also in developed countries as well. [2]

Puerperium refers to the 6 weeks period following childbirth during which time anatomical and physiological changes restore the women to pre-pregnant state. Most women go through puerperium without any complications and emerge as happy mothers. Some women however may face unexpected complications. Some are emergency situations needing prompt attention and treatment, these occur mostly within 24 hours of childbirth. Most of the other problems occur in the first week but some may be delayed up to 2-3 weeks. [3]

Most puerperium infections take place after hospital discharge. This is usually 24 hrs after delivery, in the absence of postnatal follow-up as in the case in many developing countries. Many cases of puerperal infections can go undiagnosed and unreported. The predisposing factors leading to the development of infections include home birth in unhygienic conditions, low socio-economic status, poor nutrition, primiparity, anaemia, prolonged rupture of the membranes, prolonged labour, multiple vaginal examinations in labour, caesarean section obstetrical maneuvers, retained product of conception within the uterus and postpartum hemorrhage. Puerperal infections may present as puerperal fever or sepsis, wound infection, mastitis or urinary tract infection. [4]

Physicians and nurses are involved in the prevention, diagnosis, and treatment of puerperal infections. Good prenatal care is necessary for avoiding the risk of infection after childbirth. It is important to assess patients for signs and symptoms of infection and educate patients about these signs and symptoms prior to discharge. Postnatal care for woman is essential after the delivery [5], it is important for prevention and early detection and treatment of complication and disease.

Material & Method

The present study is a Prospective Observational Study carried out in the department of Obstetrics and Gynaecology at Government Medical College Ratlam from 1st March 2019 to 31 March 2021.

Ratlam Medical College (attached with district hospital Ratlam) is a tertiary referral center situated in the outskirts of the city of Ratlam with referral from the nearby districts Jaora, Namli, Sailana, Bajna, Bangrod, Nagda etc. The staff here includes interns, medical officers, postgraduate residents, registrars, specialists. Besides the labour ward there are two operation theatres and ICU running round the clock. The obstetric unit is supported by a neonatal unit.

Sample Size:

The sample size was estimated by reviewing the literature. Ifunanya et al,

2019 and Pradhan et al, 2015 reported multipara, unbooked, prolonged labour, caesarean section, wound infection, septicemia, UTI, endometritis are the most common etiology and risk factors of puerperal pyrexia globally and Indian studies which ranged between 4 to 80%. Therefore, we considered 20% probability of risk factors with 6.4% marginal error (precision). At 95% confidence limit, 5% alpha (type I error) and 80% power (Beta), this accumulate 300 number required. Finally we planned to enroll 300 women with puerperal pyrexia in the study.

As per reported incidence of puerperal pyrexia in the literature was 6.28% in Indian population. To achieve the minimum required sample size we have to screen minimum 2500 deliveries. Therefore we have decided to screen 3000 deliveries in the study.

Source of Data:

Considering the best availability of subjects by reviewing the previous health records of this health facility, all new subjects admitted in the Obstetrics and Gynaecology Department during the study period, who fulfilled the diagnostic criteria of puerperal pyrexia and were ready to participate in the study after giving written informed consent were included in the Study.

Inclusion Criteria:

All cases admitted and delivered (>28 week of gestation and < 42 days of delivery) in our center. (temperature >38°C or 100°F for two episode, at least 6 hr apart following the first 24 hr after delivery.

Exclusion Criteria:

Patients who delivered outside our hospital were not included.

Result

Table 1: Distribution of cases according to age group

Age (In Years)	N	%
Less Than 20 Years	34	11.3
20 to 30 Years	212	70.7
More Than 30 Years	54	18
Total	300	100

P value - 0.149

Table 1 depicted age wise distribution of puerperal pyrexia among women which revealed that about two third (71%) of the subjects were age between 20 to 30 years followed by >30 years and least under 20 years of age.

Table 2: Distribution of cases according to booking status

Booking Status	N	%
Unbooked	224	74.7
Booked	76	25.3
Total	300	100

P value - 0.646

As per table majority of the women were unbooked (74.3%) and rest 25.3% were booked.

Table 3: Distribution of cases according to microbial isolates

Microbial Agent	N	%
E. Coli	44	14.6
Klebsilla Species	14	4.6
Multiple Negative Bacilli	8	2.6
Staphylococcus Aureus	6	2
No Growth	228	76.2
Total	300	100

As show in table majority of the cases (76.2%) were no growth in culture report and 14.6% cases were E. coli, 4.6% cases were Klebsilla species, 2.6% cases were multiple gram negative bacilli, 2% were Staphylococcus aureus.

Table 4: Distribution of cases according to perinatal outcome

Perinatal Outcome	N	%
Live born and discharge home	250	83.3
Early neonatal death	34	11.3
Still birth	16	5.3
P value - <0.0001		

As shown in table majority of newborn (83.3%) were live born and discharge home, 11.3% were early neonatal death and 5.3% were still birth and the difference was statistically significant (P<0.0001).

Discussion

Out of 300 cases, 70.7% cases were 20- 30 years, 18% >30 years and 11% were <20 years of age groups. Maximum patients were in the age group of 20-35 year. Other study reported by Archana et al 2018 [6], maximum numbers of patients belonged to the age group >35 years. Similar result were found in the study conducted by Pradhan et al 2015 [7], maximum numbers (60.7%) were seen in age group 20- 29 years. Similarly Nwafor Johnbosco Infunanya et al 2019 [8], reported maximum number of cases (40.4%) in age group 27 - 32 years. Likewise in study of Yannick Lechedem Ngunyi et al 2020,they had included 134 cases of puerperal pyrexia and maximum number of cases (83%) was under 20- 34 years of age group [10].

In this study, 74.7% were unbooked and 25.3 % were booked, they usually do not look up for antenatal care for varied reasons in developing country. In study of Pahula Verma et al 2016 [11], 76% cases were unbooked and 24% booked. Similar to the study published by Nwaforjohnboscoinfunanya et al 2019 [8], in 203 cases 69.46% were unbooked and 30.5% booked. Comparable study by Archana Kumari et al 2017 [6], showed 87% unbooked, 11% registered and 02% booked.

In present study among 300 cases majority of cases, 76.2% revealed no growth in culture report, 14.6% cases were E. coli, 4.6% Klebsilla species, 2.6% were multiple gram negative bacilli, 2% Staphylococcus aureus. No growth in culture report may be due to overburdening to laboratory and decrease manpower, machine and thus substandard service but knowledge of culture and sensitivity of organisms a must for guidance of antibiotics, so that treatment is cost effective and better.

In the present study 83.3% cases were live born and discharge home, 11.3% early neonatal death and 8% had still birth. In study of Joseph Ngonzi et al 2018 [12], 97% were live birth and discharge home and 3% were still birth.

Conclusion

Most common cause of puerperal pyrexia in our study is urinary tract infection (this may be attributed to improper asepsis during catheterization), followed by pain in breast or breast engorgement, endometritis, wound infection, Risk factor for women who developed bacteriuria were primiparity, cesarean delivery, perineal laceration, oxytocin induced or augmented labour, operative vaginal delivery, catheterization and prolonged labour.

Difficulties in breastfeeding, cracked nipples were also contributory factors in to developing fever in Puerperium period.

The route of delivery is significant risk factor for development of uterine infection

risk increases with prolong membrane rupture, prolong labor and multiple vaginal examination.

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