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A Clinical Study of the Incidence of Mastitis in Postnatal Breastfeeding Women

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Original Research Article

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Abstract: Mastitis is an inflammatory condition of the breast that may or may not is accompanied by infection. It is a preventable complication during breastfeeding but women are unaware regarding its management and prevention. Methods: This study was conducted in the Department of General Surgery, Rajiv Gandhi Institute of Medical [RIMS], Adilabad. Institutional Ethical committee permission was obtained for the study. Patients with lactational mastitis attending surgical OPD were studied. History was taken and clinical examination was done and ultrasound scanning was done. Breast milk samples were analyzed in the context of a study about the microbiology of mastitis. Results: Out of the 2321 patients studied 39 cases were detected with lactational mastitis the incidence of mastitis in our study was 1.68%. The most common clinical sign and symptom of mastitis in 39 patients in decreasing order was Breast engorgement in 41.02% of cases, Erythema in 23.07% of patients, cracked nipple in 12.82% of cases, Edema in 7.7% patients, ulceration in 5.1% patients, and swollen lymph nodes in 1.0% of patients. In this study 13 samples were sent for culture and sensitivity out of which 8 (61.53%) were positive for Staphylococcus aureus, 4 (30.77%) were positive for coagulase-negative Staphylococcus aureus and 1 (7.69%) was positive for Methicillin-resistant Staphylococcus aureus. The methods of management of the patients involved with mastitis were only antibiotics were given in (n=21) 53.84% of cases followed by Incision and drainage in (n=13) 33.33% cases and Aspiration in (n=5) 2.82% of cases. Conclusion: the incidence of mastitis is slightly higher in this group of the population due to lack of lactational counseling. It is a major predisposing factor apart from that lack of education and poverty are other factors. Most of the cases of mastitis were found in the first three months of lactation. Mastitis is a problem of public health concern since it often results in early weaning and depriving many children of breastfeeding benefits. Despite the importance of this disease research in this area has been minimal and more studies are required to determine the actual rate of incidence and management of the disease.
Keywords: Mastitis, Incidence, postnatal breastfeeding.

INTRODUCTION

Mastitis is an inflammatory condition of the breast that may or may not is accompanied by infection. Lactational mastitis occurs when pressure builds within the milk cells (alveoli) from stagnant or excess milk, leading to cellulitis of the interlobular connective tissue within the mammary gland. Mastitis can be non-infective or infective. The cause of non-infective mastitis is not fully understood, however, it has been attributed to the inflammatory response to cytokines secreted by mother. The Infective mastitis can occur as a sequel to non-infective mastitis and secondary infection of stagnant milk. Infectious mastitis affects up to 33% of women during lactation, although its incidence may be underestimated because of differences in the case definition and reporting [1-4]. Lactational mastitis happens when the pressure from stagnant or excess milk builds within the alveoli. Over-distention of the alveolar cells can cause milk to leak into the surrounding connective tissues. Milk present in excess outside the ductal system of the breast can cause a localized immune reaction with subsequent inflammation and swelling. If milk escapes from the alveolar cells and enters the bloodstream via the mammary capillary system, the patient will experience an immune response with a pyrexia and malaise even in the absence of infection. The most common organism associated with cases of mastitis and breast abscess is Staphylococcus aureus. Escherichia coli), Bacteroides and streptococci (alpha, beta, and non-hemolytic) are sometimes found, and these latter have, in a few cases, been linked to neonatal streptococcal infection. However, there is no significant correlation between bacterial counts and severity of symptoms. Pathogens

such as S. *aureus* may be found in breast milk where there is no clinical manifestation of mastitis and no adverse effect to the infant [5]. Most of the studies on mastitis the true incidence are difficult to assess since it would be necessary to define a time limit for collection of data and to know the population size which at risk, that is the mothers breastfeeding in the area of study [6]. Lactational mastitis constitutes on the main medical causes of premature weaning due to the pain and discomfort or as a result of inappropriate advice [7, 8]. Since breastfeeding provides a wide range of health benefits for the mothers and infants [9-11]. It is a public health issue and must be taken care of with this background we in the present study tried to evaluate the incidence of lactational mastitis in this group of the population. The RIMS, Adilabad hospital caters to the health needs of poor and tribal people and most of them are unaware of the condition and methods of management. This study will enlighten us regarding the existence of lactational mastitis in this group of the population.

MATERIALS AND METHODS

This study was conducted in the Department of General Surgery, Rajiv Gandhi Institute of Medical [RIMS], Adilabad. Institutional Ethical committee permission was obtained for the study. Patients with lactational mastitis attending surgical OPD were studied. Inclusion criteria were all postnatal patients and lactating mothers up to 1 year of age. No history of any significant systemic disorders. Exclusion criteria were patients with History of breast malignancy, previous breast surgeries, Raynaud's syndrome and cutaneous infections. The patients were presenting with signs and symptoms of breast redness, pain and engorgement and systemic symptoms include fever or flu-like symptoms. The diagnosis of mastitis was confirmed by clinical findings, ultrasound findings, and culture tests. In patients who had only local signs and symptoms of inflammation and ultrasound findings of dilated ducts were subjected to conservative treatment with antibiotics for 7-10 days. Those patients with skin involvement, ulceration, palpable lymph nodes and USG showing < 5cms either collection of abscess or galactocele were subjected to aspiration by using a wide-bore needle. Pus obtained was then sent to culture and sensitivity testing. In patients with more than 5 cms of a collection of pus or galactocele had Incision and Drainage [I & D] performed and the samples of pus and milk obtained were then sent to culture and sensitivity tests. The incisions were made across the Langer's lines, followed by adequate surgical drainage with the breaking of loculi and the wound was loosely packed and it healed by secondary intention. In 3 patients there was a recurrence of mastitis rest all were cured uneventfully.

RESULTS

The most common age group of patients involved in this study was 21 -25 years having n=1002 (43.17%) the numbers of patients with mastitis were 15 out of 1002 (0.65%) the next age group was 26 - 30 had 649 patients in that 7 (0.30%) had mastitis, in age group of 31-35 414 lactating females were examined and 9 (0.39%) had mastitis shown in table 1. The incidence of mastitis in our study was 1.68%.

Table-1: Age distribution of the patients involved in the study

Age group	Number of females studied	No. of females affected by mastitis	percentage
19 – 20	256	8	0.34
21 – 25	1002	15	0.65
26 – 30	649	7	0.30
31 – 35	414	9	0.39
Total	2321	39	1.68

The lactating females up to 1 year were examined in the present study. Out of total 39 cases of mastitis detected 43.59% of cases were detected during the first 3 months post-delivery. 23.08% of patients were with mastitis during post-delivery 3 -6 months and 33.33% of patients were from 6 months to 1 year shown in table 2.

Table-2: Distribution of mastitis during the lactation period

Distribution	No. of Patients	Percentage
First 3 months of delivery	17	43.59
3 – 6 months of delivery	9	23.08
6 months to 1 year	13	33.33
Total	39	100

The most common clinical sign and symptom of mastitis in 39 patients in decreasing order was Breast engorgement in 41.02% of cases, Erythema in 23.07% of patients, cracked nipple in 12.82% of cases, Edema in 7.7% patients, ulceration in 5.1% patients, and swollen lymph nodes in 1.0% of patients shown in table 3.

Table-3: Results of clinical examination of the patients

Clinical examination	No of patients (n=39)	Percentage
Breast engorgement	16	41.02
Edema	3	7.7
Cracked nipple	5	12.82
Erythema	9	23.07
ulceration	2	5.1
Swollen lymph nodes	4	1.0

In this study 13 samples were sent for culture and sensitivity out of which 8 (61.53%) were positive for Staphylococcus aureus, 4 (30.77%) were positive for coagulase-negative Staphylococcus aureus and 1 (7.69%) was positive for Methicillin-resistant Staphylococcus aureus. The methods of management of the patients involved with mastitis were only antibiotics were given in (n=21) 53.84% of cases followed by Incision and drainage in (n=13) 33.33% cases and Aspiration in (n=5) 2.82% of cases.

Table-4: Management of patients with mastitis

Management	No. of Patients	Percentage
Only Antibiotics	21	53.84
Aspiration	5	12.82
Incision and Drainage	13	33.33
Total	39	100

DISCUSSION

The present study included 2321 women during their lactational period out of which 39 were diagnosed as lactational mastitis. The incidence of mastitis in our study was 1.68%. The global estimate of the incidence of lactational mastitis varies considerably with a range from 2% to 50 % [10]. A study by Clark SI *et al*. [8] suggested the incidence of 3.6% and a study from Glasgow suggests an incidence of 18% [13]. Many studies have suggested that approximately half of all cases of lactational mastitis occur in the first four weeks of starting of breastfeeding [3, 5, 12, 13]. In the present study also 43.59% of the cases of lactational mastitis were from the first three months of starting of lactation. The results are comparable to other studies done by Foxman *et al*. [1] Scott J A *et al*. [3] and Clark SI *et al*. [8] Although mastitis can occur at any stage during lactation and when there is an increase in the number of breastfeeds or milk expression is reduced. The mean age of the patients involved in the present study was 24.5 years Lee IW *et al*. [7] has reported an average age of 29.2 years and Gojen Singh *et al*. [14] has reported an average age 32 years. In the study we found that there was lack of lactational counseling in (51.4%) of patients in form of advice on proper feeding, cleaning of the nipple and areola before and after breastfeeding, taking care of cracked nipple and expression of breast milk to prevent stasis. One of the important factors associated with mastitis is the use of antibiotics during breastfeeding. Widespread use of broad-spectrum antibiotics is causing increasing antimicrobial resistance among mastitis causing agents [15-17]. In this study we found 43.59% of those detected with mastitis were on antibiotic therapy. 13 samples were sent for culture and sensitivity out of which 8 (61.53%) were positive for Staphylococcus aureus, 4 (30.77%) were positive for coagulase-negative Staphylococcus aureus and 1 (7.69%) was positive for Methicillin-resistant Staphylococcus aureus. It has been reported that Staphylococci (S. *aureus* and CNS) are the most common mastitis-causing agents [18]. E.coli and other gram-negative bacteria, Bacteroides and streptococci are sometimes found and the streptococci are also linked to neonatal streptococcal infections. There is no significant correlation between bacterial counts and severity of symptoms. S.*aureus* is also found in breast milk where there is no clinical manifestation of mastitis and no adverse effects on infants [5]. We in the present study managed the patients based on the clinical examination and ultrasound findings. 21 (53.84%) patients were prescribed antibiotics and they responded well to this treatment. Incision and drainage were done in 13 (33.33%) of patients and aspiration and antibiotic treatment was done in 5 (12.2%) of patients most of the patients were cured in 3 patients there was recurrence and they were treated by aspiration and antibiotic treatment and it resolved.

CONCLUSION

The incidence of mastitis is slightly higher in this group of the population due to lack of lactational counseling. It is a major predisposing factor apart from that lack of education and poverty are other factors. Most of the cases of mastitis were found in the first three months of lactation. Mastitis is a problem of public health concern since it often results in early weaning and depriving many children of breastfeeding benefits. Despite the importance of this disease research in this area has been minimal and more studies are required to determine the actual rate of incidence and management of the disease.

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