

ASSOCIATION BETWEEN URINARY TRACT INFECTION AND PRE-TERM LABOUR A PROSPECTED STUDY IN BASRAH MATERNITY AND CHILD HOSPITAL

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Abstract

Preterm birth is complex condition with multiple risk factors and substantial medical, psychological, economic and social impacts. Preterm is also the most important determinant of short and long term morbidity in infant and children.

The aim of this study is to determine the association between preterm labour and urinary tract infection, parity, socioeconomic state, locality and degree of education. A prospective descriptive study had been carried out in Al-Basrah Maternity and Child Hospital from 1st of February 2020 to 1st of October 2020 which include (100) pregnant women admitted to labour room and had spontaneous preterm labour, they evaluated clinically and by investigations. The percentage of urinary tract infected women is 62% among total women with preterm labor, 38% of women had no Urinary Tract Infection (UTI). The UTI diagnosed by presence of 10 or more pus cells and / or bacteria (10) 5 or more. Sixty three percent of women was primigravida and 37% of them was multigravida (not more than gravida 3). Forty-two percent of women was from city center and 58% of them from peripheral areas. Forty-One percent of women have high education level define by having secondary school and more and 59% of them have low education level. Fifty-Eight percent of women having low income defined by family income less than 600000 iraqi dinar and 42% of them have high income.

The study showed strong association between preterm labour and urinary tract infection, so we advise to do it on large number of patients to prove the relationship between preterm labour and urinary tract infection.

Keywords: preterm labour, urinary tract infection.

Introduction

Preterm labour refers to birth of baby that occurs before completed 37 week of gestation. Preterm birth can further subcategorized as late preterm delivery between 34 to 37 weeks, moderate preterm between 32 to 34 weeks, very preterm between 28 to 32 weeks and extreme preterm between 24 and 28 week. Preterm birth also can be defined by birth weight as low birth weight (less than 2500 g), very low birth weight (less than 1500 g), and extremely Intraute low birth weight (less than 1000mg) ¹.

Significance: Preterm birth is complex condition with multiple risk factors and substantial medical, psychological, economic and social impacts. Preterm is also the most important determinant of short and long term morbidity in infant and children, Its main serious complication: cerebral palsy, blindness, developmental difficulties including cognitive, sensory learning and language deficits ².

Risks factors ³: *Socio_demographic: Ethnicity*

(it is more common in black women, black women to white ratio is 3:1), *Maternal age, body mass index, Stress life event and Social class.*

Obstetrical risk factors: *Iatrogenic preterm labour* account for 30%, Multiple gestation: increase risk for 2-3%. *Uterine anomalies*, Uterine Leiomyoma, Atepartum hemorrhage, previous preterm labour, *Infection:* 25% of all preterm labour occur in mothers with bacterial colonization of uterus, bacteria which cause placental infection are capable of producing prostaglandins which induce uterine contraction and initiate preterm labour and addition to the inflammatory response and cytokines which cause further increase in prostaglandin level.

Urinary tract infection (UTI): Annually it is estimated that one billion women around the world suffer from sexually and non-sexually transmitted urogenital infection including urinary tract infection ⁴. In our study attempt to find association between urinary tract infection and one of its' impor-

tant obstetric complication which is preterm labor . Urinary tract infection is condition when one or more part of genital tract (kidney, ureter, bladder ,or urethra) become infected with pathogen mostly bacteria, it is common condition about 50% of all females get UTI during their life time ⁵ less than 2% of pregnant women causes symptoms include: urgency, frequency, suprapubic discomfort in absence of systemic illness ⁶. The Complication of UTI ⁷ includes: Spontaneous preterm labour, Pre-term premature rupture of membrane, Chorioamnionitis, Late miscarriage (17-23)weeks.

The most common organism are E.coli (account for 80-90% of urinary tract infection), Klebsiella spp, proteus, Enterobacter spp, group B streptococci and others ⁸.

Aim of study

The aim of this study is to determine the association between preterm labour and urinary tract infection, parity, socioeconomic state, locality and degree of education.

Patients & Methods

This study was done at Basrah maternity and child hospital which is astate-funded hospital serving center of Basrah city and nearby rural areas; at 2020 from 1st of February to 1st of October. One hundred patients were selected and evaluated by same physician and final diploma resident. A history of age, parity locality, economic state, level of education and symptoms of preterm labour which include cyclical abdominal pain, lower back pain,

pelvic pressure and excessive vaginal discharge ⁹. We didn't depend on history to reach the diagnosis of urinary tract infection as the symptoms of urinary tract infection confusing with that of preterm labour so we depend on the mid-stream voided urine specimen represents 10 or more pus cell and\ or colony of greater than (10) ⁵, unfortunately our facilities interfered with using culture to identified the pathogen which is the gold standard to diagnose the urinary tract infection, while presence of pyuria suggest infection it is not diagnosed ¹⁰. Each women had abdominal and pelvic examination and *our criteria to diagnosed preterm labour were:* Presence of regular uterine contraction at least 1 every 10 minute , and Cervical examination of more than 1 cm. Our criteria include age of women between 21 and 35, the Parity is not more than gravida 3 and gestational age between 28 to 36. *The exclusion criteria include:* Premature rupture of membrane, multiple pregnancy, antepartum hemorrhage.

By this way we collect the data of patient with preterm labour, the, percentage of women with UTI, their parity, locality, income and level of education.

Results

One hundred case diagnosed as preterm labour of gestation, their age between 28 to 36 weeks. Out of 100 preterm labour women, 62 was complain of UTI (with percentage 62%) and 38 had no UTI (percentage of 38%); Table (1).

Table 1: Number and Percentage of women with preterm labour

| Preterm Labour | UTI (Number) | Percentage |
|----------------|--------------|------------|
| Present | 62 | 62% |
| Absent | 48 | 48% |

Thirty four of women with preterm labour and UTI (62) (group A) living in rural areas and 28 women living in urban. And for group of preterm labour

without UTI (group B) 19 living in rural areas and 19 living in urban; Table (2).

Table 2: Number. and Percentage of women who living in center and peripherals, fortunately significant result

| Total (100) | Rural (Number) | Percentage | Urban (Number) | Percentage | P. Value |
|-------------|----------------|------------|----------------|------------|----------|
| With UTI | 34 | 55% | 28 | 45% | 0.317 |
| Without UTI | 19 | 50% | 19 | 50% | 1.000 |

Forty nine were primi women in group A and 13 were multigravida. In group B, 17 were primi and

21 were multigravida; Table (3).

Table 3: Number. and Percentage of primi and multigravida among all preterm cases, fortunately significant result

| Total (100) | Primi (Number) | Percentage | Multi (Number) | Percentage | P. Value |
|-------------|----------------|------------|----------------|------------|----------|
| With UTI | 49 | 79% | 13 | 21% | 0.002 |
| Without UTI | 17 | 44% | 21 | 56% | 0.000 |

Twenty nine women of group A were of high education and 33 women were of low education, while

in group B; 20 were of high education and 18 were of low education; Table (4).

Table 4: Number. and Percentage of high and low education women among all pre-term cases, unfortunately not significant result

| Total (100) | Low Education (Number) | Percentage | High Education (Number) | Percentage | P. Value |
|-------------|------------------------|------------|-------------------------|------------|----------|
| With UTI | 29 | 47% | 33 | 53% | 0.544 |
| Without UTI | 20 | 53% | 18 | 47% | 0.549 |

Thirty three women of group A have low income and 29 women have high income, while in group B

31 women have low income and 7 of high income. Table (5).

Table 5: Number. and Percentage of high and low income among women with pre-term labour in our study, fortunately significant result

| Total (100) | Low Incom (Number) | Percentage | High Incom (Number) | Percentage | P. Value |
|-------------|--------------------|------------|---------------------|------------|----------|
| With UTI | 33 | 53% | 29 | 47% | 0.549 |
| Without UTI | 31 | 81% | 7 | 19% | 0.000 |

Discussion

Preterm labour and Urinary tract infection are both very important obstetrical health problems, they increase both neonatal and maternal morbidity so it's possible to prevent these complications and lower the morbidity associated with them by studying these health problems in details ¹¹. In our study we try to concentrate on this association and other factors; parity, locality, economic state as well as the education level. There is wide difference in finding of urinary tract infection in pregnant with or without preterm labour worldwide ¹². It is higher in developing countries as 52% and 21% in UK. In our study the percentage of UTI in patients with preterm labour, this finding agree with study done in Mississippi ¹³.

We found preterm labour in patients with UTI increase in primigravida compare with Multigravida and the result was significant as we compare with the other group of preterm without UTI . Our result was significant. Also more common preterm labour in peripherals areas, low income and low education and this finding compare with the group of preterm without UTI, our result was significant except the education variable was not significant. We selected exclusion criteria that include; Anteartum hemorrhage, Multiple pregnancy and premature rupture of membrane, to focus on our needed parameters and exclude other as over distended uterus.

Conclusion and Recommendation

In our study we found there is strong association between preterm labour and urinary tract infection, in addition, having UTI during pregnancy is significantly associated with poor pregnancy outcomes, early diagnosis followed by immediate therapy is essential during pregnancy to avoid ad-

verse maternal and neonatal health outcomes. But unfortunately our study of small number so we advise to do study of large number to prove the relationship between preterm labour and urinary tract infection.

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