International Journal of Applied Research 2018; 4(9): 258-262

ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2018; 4(9): 258-262
www.allresearchjournal.com
Received: 22-07-2018
Accepted: 24-08-2018

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Antenatal clinical observations in pregnant women with asymptomatic Bacteriuria

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Abstract
There are a number of blood that are offered during pregnancy to pick up certain illnesses like UTI, VDRL, HIV and anemia. This paper throws light on some of the antenatal clinical observations in pregnant women with ASB. Study was carried out over a period of two years in Nair Hospital, Mumbai. 3000 married pregnant women from Gynecology department, which were recruited for bacteriologic evidence of ASB were included in study. Detailed data from the patients were recorded in a specially formulated structured proforma to record their age, trimester of pregnancy, History of UTI, VDRL seropositivity, HIV seropositivity, Hemoglobin content and blood grouping profile. In pregnant women, majority (55.4%) of cases were in age group of 18 to 23years, while <1 % of cases belonged to age group 36 to 40years. In ASB category, 36 to 40 years age group showed 10% cases, while age group 30-35 years showed 7.62% cases. Pregnant women screened were high in second trimester (49.53%) followed by in third trimester (40%). Risk of ASB was highest in second trimester (8.7%) followed by third trimester (7.9%) and first trimester (7.8%). History of UTI was observed in 1.61% cases, VDRL seropositivity in 1.61% cases, HIV seropositivity in 3.22% cases, and Highest Haemoglobin content of 10-12.5g % in 68.14% cases. Blood group B positive was more common (46.75 %) followed by O positive (27%). Antenatal clinical observations in pregnant women become important while treating asymptomatic Bacteriuria in them.

Keywords: Antenatal clinical observations, pregnant women, asymptomatic Bacteriuria, Uti, VDRL, HIV

1. Introduction
There are a number of blood tests and other types of routine tests that are offered during pregnancy. These tests are designed to pick up certain illnesses or other possible problems. If any health problems are picked up by these tests, they can often be treated during pregnancy or immediately after birth, allowing mother and baby to stay as healthy as possible. Blood is tested for hemoglobin, blood group, rubella immunity, hepatitis B, syphilis, HIV and hepatitis C. Doing all these tests at once means that pregnant women will have the results as early as possible during her pregnancy. Pregnant women's blood is being tested to check her blood group in case ever needs a blood transfusion and to check Rh factor. Hemoglobin is tested usually at first antenatal visit. Pregnant women, need much more iron than usual to produce enough hemoglobin and to lay down iron stores for the baby. Anemic, pregnant women feels tired, more prone to infections and to cope with losing blood, such as when birth of baby. Once anemia has been picked up by a blood test it is usually easy to treat by eating more iron-rich foods. Syphilis is a sexually transmitted disease that is quite uncommon today - but it is still vital to detect and treat women who have this infection. Early treatment can prevent the unborn baby from being infected. AIDS is caused by the human immunodeficiency virus (HIV). It can cause serious illness to affected people. Infections have resulted from mother-to-baby transmission during pregnancy, birth or breastfeeding. A blood test for HIV will be especially important if women had unprotected sex and did not know her partner's HIV status or if she had ever injected non-prescription drugs.
On first antenatal visit, a sample of urine is collected from pregnant women and tested for urinary tract infection. Sometimes pregnant women can have this type of infection without having any symptoms which is asymptomatic Bacteriuria (ASB). It can be treated with

antibiotics and untreated UTI can lead to serious kidney infections and pregnancy complications [1]. This paper throws light on some of the antenatal clinical observations in pregnant women with ASB.

2. Material and Methods

2.1 Place of work

Study was carried out over a period of two years, from January 2003 to December 2004 after taking the permission from Institutional Ethics committee of T. N. Medical College and B. Y. L. Nair Charitable Hospital, Mumbai, in Department of Microbiology in association with Department of Obstetrics and Gynecology.

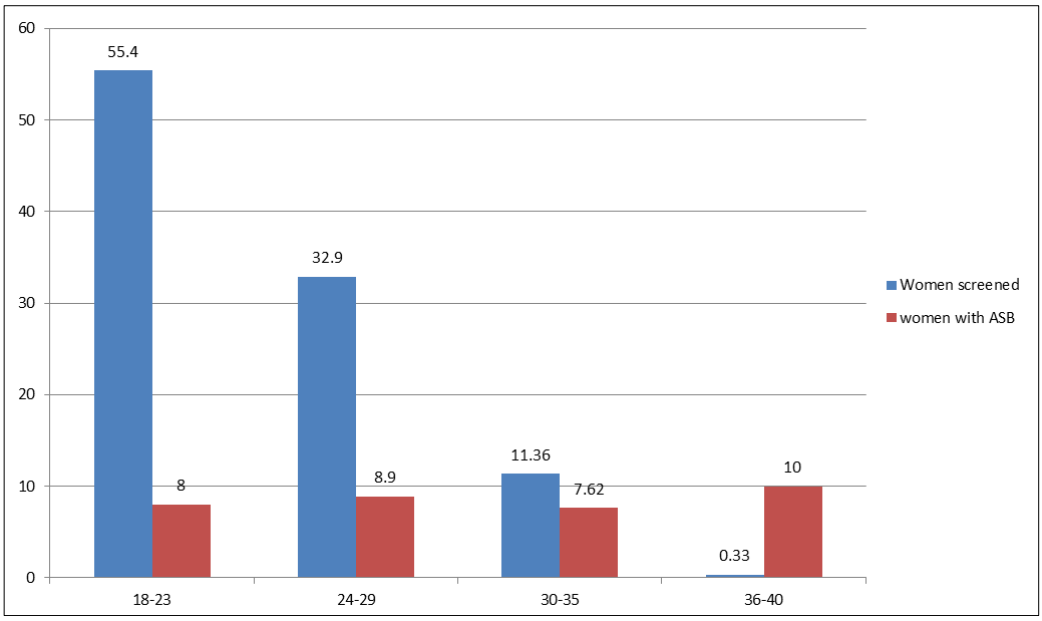
2.2 Participants

3000 married pregnant women from Gynecology department, which were recruited for bacteriologic evidence of ASB, were included in study. Subjects showing symptoms of UTI, suffering from diabetes, under antibiotic or steroids treatment in past, were excluded from study. Counseling of subjects for enrollment procedure was done. Detailed data from the patients were recorded in a specially formulated structured proforma to record their age, parity, trimester of pregnancy, History of UTI, VDRL seropositivity, HIV seropositivity, Hemoglobin content and blood grouping profile.

2.3 Sample Collection, microbiological and serological analysis

Collection and transportation of urine was carried out by standard procedures [2]. (Koneman EW *et al*, 1997) Microscopic examination was done by Wet film examination [3]. (Delost MD, 1997) and Gram staining using Hucker's modification [4]. (Isenberg HD, 1992). Identification of isolates was done on basis of morphological, cultural characteristics and biochemical tests [5]. (HiMedia Laboratories Manual, 1998). Blood was collected from the subjects and serum was separated to check, HIV and VDRL seropositivity and Blood grouping. HIV was checked by three methods. First by Immuno Comb by span diagnostics, Second by Immuno titration by Tridot by J. Mitra Company and third by Indirect Elisa third generation by J. Mitra Company and VDRL seropositivity was checked by Rapid Plasma Reagin RPR test by Tulip diagnostics. Blood grouping by agglutination method by Tulip Diagnostics.

3. Results



Married, pregnant women=3000 Married, pregnant women with ASB=248

Graph 1: Age distribution of population studied for ASB (%)

In pregnant women, majority (55.4%) of cases were in age group of 18 to 23years, while <1 % of cases belonged to age group 36 to 40years. In ASB category, 36 to 40 years age group showed 10% cases, while age group 30-35 years showed 7.62% cases.

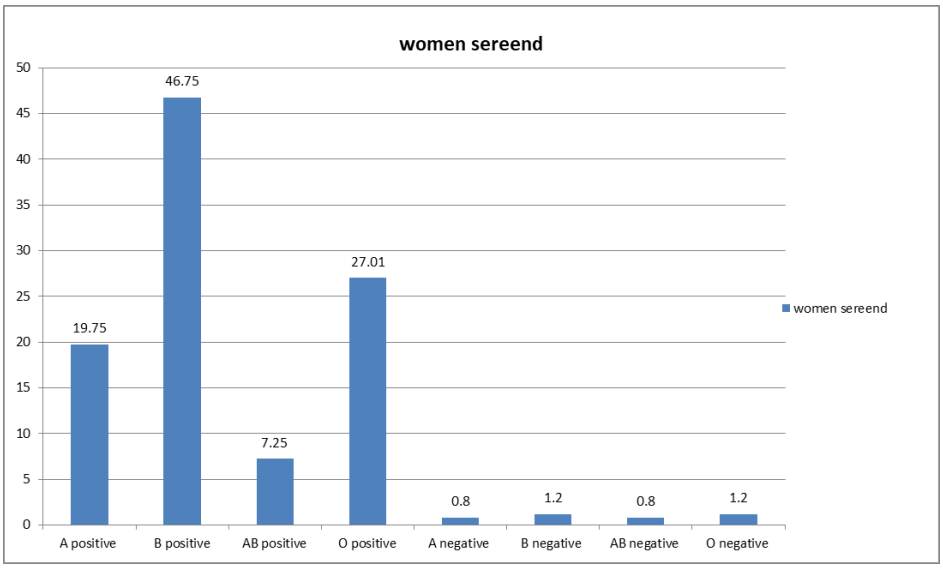
Table 1: Trimester of pregnancy in married women

Parity	Total no. Screened = 3,000	%	Cases with ASB = 248.	%
First	305	10.16	24	7.8
Second	1486	49.53	118	8.7
Third	1209	40.3	106	7.9

Pregnant women screened were high in second trimester (49.53%) followed by in third trimester (40%). Risk of ASB was highest in second trimester (8.7%) followed by third trimester (7.9%) and first trimester (7.8%).

Table 2: Antenatal clinical observations in women with ASB

S. No.	Clinical observations	No. of Cases = 248.	%
1	History of UTI	4	1.61
2	VDRL seropositive	4	1.61
3	HIV seropositive	8	3.22
4	Haemoglobin content		
	4-6.5 g %	003	1.20
	7-9.5g%	072	29.03
	10-12.5g%	169	68.14
	13-15.5%	004	1.61



Graph 3: Blood group profile of pregnant women with ASB No. of Cases = 248

4. Discussion

Detailed data from the patients were recorded in the study in a specially formulated structured proforma to record their age, History of UTI, VDRL seropositivity, HIV seropositivity, Hemoglobin content and blood grouping profile of ASB positive pregnant women.

In pregnant women, majority (55.4%) of cases were in age group of 18 to 23years, while <1 % of cases belonged to age group 36 to 40years. In ASB category, 36 to 40 years age group showed 10% cases, while age group 30-35 years showed 7.62% cases. Nath G *et al.* [6]. reported incidence among 24-29years as 10.37% (17/164) followed by 18-23years as 5.26% (11/209) and >30years age group were 12.43% (21/169. Prevalence of ASB in Libya, in all women was 8.3% (10/120), in pregnant women was 11.7% (7/60), and in nonpregnant women was 5% (3/60). This indicates that about 16.7% of pregnant women were at risk of development of acute episode of UTI during pregnancy if they were not properly treated [7]. (Khaled AA *et al*, 2017). Study in turkey, reported prevalence of ASB as 8.1% [8]. (Tugrul S *et al*, 2005).

In the study group, 50% pregnant women were found to be in the second trimester and 40% were found to be in the third trimester. Only 10% belonged to first trimester. When the incidence of ASB was analyzed with duration of pregnancy, it was found to be 8.7% in third trimester followed by 7.9% in second trimester and 7.8% in first trimester. Similar observations have also been made by earlier workers. Nath G *et al* observed that UTI cases in 3rd trimester 11.9% (27/226) was significantly higher than the first trimester 5.7% (6/104) when compared with 2nd trimester (7.5%) (16/212). It showed insignificant difference with 1st and 3rd trimester. The incidence of ASB in pregnancy was observed to be 8.26% which was well within the range of earlier reports (5-10%) from India. These findings with regard to the order of incidence are similar to the observation made by Lavanya *et al* [9] Nath G *et al* reported higher incidence of UTI in pregnancy to be 9.04%. Bandyopadhyay S *et al* [10]. reported incidence of ASB in pregnancy to be 4.34%.

Urinary tract infections remain a leading cause of morbidity and healthcare expenditure in all age groups. We reported History of UTI in 4 cases out of 248 of ASB, UTI account for about 10% of primary care consultations by pregnant women and it was reported that up to 15% of women will have one episode of UTI at some time during their life.1The incidence of UTI reported among pregnant mothers is about 8% [11, 12]

Syphilis is a sexually transmitted disease (STD) caused by the bacterium *Treponema pallidum*, but little is known about its mechanism of action or what determines virulence of infection [13]. Untreated syphilis in pregnancy leads to adverse outcomes among more than half of the women with active disease, including early fetal loss, stillbirth, prematurity, low birth weight, neonatal and infant death, and congenital disease among newborn babies [14]. In 2010, a total of 13,774 cases of primary and secondary syphilis were reported to Centers for Disease Control and Prevention [15]. According to World Health Organization (WHO), 12 million people were infected each year [16]. We reported 4 cases of VDRL positive out of 248 ASB cases. The rate of syphilis among women was 1.1 cases per 100,000 women in 2010, and the rate of CS was 8.7 cases per 100,000 live births in 2010 [17]. According to the most recent (2008) estimates from WHO, about 1.9 million pregnant women had active syphilis [18].

Human immunodeficiency virus (HIV), a chronic infection associated with progressive immune dysfunction, appears to increase risk for developing significant Bacteriuria in patients [19]. This study [20]. has shown a high prevalence of ASB among HIV positive pregnant women. However, the result is similar to those seen in patients with other immune suppressive clinical conditions like diabetes mellitus and sickle cell disease. The risk factors for ASB in this patients were low CD4 counts and high viral load [21, 22]

Anemia is a major health problem that affects 25% to 50% of the population of the world and approximately 50% of pregnant women [23]. Anemia in pregnancy is associated with increased rates of maternal and perinatal mortality, premature delivery, low birth weight, and other adverse outcomes [24]. During pregnancy, anemia increased more than fourfold from the first to third trimester [25]. It is a well-established fact that there is a physiological drop in hemoglobin (Hb) in the mid trimester [26].

We reported 3 cases with lowest hemoglobin (HB) that is 4-6.5% followed by 7-9.5% HB in 72 cases, 10-12.5% HB in 169 cases and highest HB content that is 13-15.5% in 4 cases.

Other studies have shown a higher degree of anemia in pregnancy such as 87% in India [27]. 58.6% in China [28] 50% in South Asia [29] and 43% in Turkey [30]. The low prevalence of anemia in the present study may be related to more frequent iron supplementation consumption. Since the women had more visits for prenatal care so in each visit they were encouraged to take their supplements. Therefore, it seems that iron deficiency anemia is relatively lower in this study in compared to other studies. Based on the results, the hemoglobin levels in the non anemic group showed a drop in second trimester. Again the hemoglobin level increased in third trimester and it was realized to be similar to the first trimester [31]

Pregnant women who are Rhesus (Rh) negative may need to have an Rh D immunoglobulin injection to safeguard their babies. If the baby is also Rh negative there will be no Rh problems. If the baby is Rh positive, there is a risk that some of its Rh positive blood cells may enter the mother's bloodstream during the pregnancy or birth. If this is left untreated, the mother will develop antibodies to the baby's Rh positive blood. If a mother develops antibodies, these antibodies will cross the placenta and may destroy a baby's red blood cells, in this or in future pregnancies. If not treated these babies may be anemic, or at risk of brain damage or even die before birth. An injection of Anti-D can be given to an Rh negative mother, which helps stop her immune system making antibodies to the baby's Rh positive cells. There are no reports stating association of blood grouping and ASB in pregnant women.

5. Conclusion

Antenatal clinical observations like History of UTI, VDRL sero positivity, HIV sero positivity, Hemoglobin content and blood grouping profile of pregnant women are very important while treating ASB in pregnant women, premature delivery and to have infants of low birth weight.

6. Acknowledgement

Authors are grateful to Nair Golden Jubilee Research Foundation for providing financial help to carryout this study. Also to Dr. Asha Dalal, Ex-Professor and Head, Department of Obstetrics & Gynecology and Dr. Saraswati karr Ex- Professor and Head, Dept of Microbiology of T. N. Medical College and B. Y. L. Nair Charitable Hospital for their moral support.

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