



Prevalance and treatment outcome of vulvovaginal *candidiasis* in A Gestational Diabetic Pregnant Woman.

Divyaa.R¹, K. Saraswathi²

¹Final year Obg postgraduate , Sree Balaji Medical College and Hospital

²Head of Obg Department Sree Balaji Medical College and Hospital and Sincere

Received 22 September, 2015; Accepted 10 October, 2015 © The author(s) 2015. Published with open access at www.questjournals.org

ABSTRACT:- Vulvovaginal candidiasis is a common cause of vaginitis during pregnancy. It is estimated that 75% pregnant women experience at least one episode of vulvovaginal candidiasis infection in a Gestational Diabetic Pregnant Women. Prospective analytical study performed in SBMCH in the year 2013- 2014 in 100 Gestational Diabetic Pregnant Women. All the Gestational Diabetic Pregnant Women who had vaginal discharge irrespective symptomatic/ asymptomatic were included in this study. High vaginal swab were taken and sent for laboratory for, KOH wet mount, culture sensitivity, and if needed complementary test are done. In this study *Candida* was more common in middle class socioeconomic group (43.47%), common in 26-30 years of age group (64%), common in 3rd trimester of pregnancy(56.52%), culture sensitivity is more sensitivity than KOH wet mount method. Most common organism identified in this study is *Candida albicans* in diabetic pregnant women in uncontrolled Gestational Diabetic Pregnant women.

Keywords:- Gestational Diabetic pregnant women- controlled, uncontrolled, Vulvovaginal Candidiasis, PROM, Recurrence.

I. INTRODUCTION

Most common vaginal infection encountered by pregnant women is vulvovaginal *Candidiasis*. More Susceptible for fungal infection which is the common organism so called *Candida Albicans*^(1,2).It is less common in Primigravida than Multigravida⁽²⁾.Recurrent infection occurs in 50% of pregnant women, with ¾th patient experiencing it at least in their life period^(3,4).Risk factors of vulvovaginal *Candidiasis* are Diabetes Mellitus, Pregnancy, High BMI, Poor Personal Hygiene, Immunocompromised Patient, and Chronic Use of Antibiotics^(5,6)The pathogenesis of VVC in Gestational Diabetic pregnancy is attributed to rise in estrogen, progesterone hormones, whereas progesterone suppresses neutrophills, ⁽⁷⁾ it favors the growth of *Candida*. Estrogen, on the other hand decreases the activity of vaginal epithelial cells, which inhibit the growth of *Candida*, which results decrease in the immunoglobulin in the vaginal secretion, which renders Gestational Diabetic pregnant woman to vaginitis. Symptoms of VVC include pruritis, painful micturition, and dyspareunia. The characteristic feature of VVC is thick curdy white discharge, pruritis, excoriation.

II. MATERIALS AND METHOD

Prospective analytical study performed in 100 Gestational Diabetic pregnant women who were attending antenatal OPD of SBMCH. Variables analyzed are socio economic status, age group, parity, which was symptomatic and asymptomatic. During per speculum examination type of discharged noticed clinically and High Vaginal Swab are taken and sent for KOH wet mount, culture sensitivity and if needed complementary test have been done.

Inclusion Criteria- Gestational Diabetic pregnant women, singleton pregnancy,all three trimester of pregnancy.

Exclusion Criteria - HIV/AIDS infected cases in pregnancy, non diabetic pregnant women.

IV. STATICAL ANALYSIS

SPSS version was used to analyses the study. Chi-square test used to find out the association of variables and p value less than 0.05 was taken as statically significant.

V. RESULTS

This study involves 100 Gestational diabetic pregnant women in all three trimester of pregnancy. Incidence of *Lactobacillus* was about 46%. Incidence of vulvovaginal *candidiasis* was about 46%. Incidence of vulvovaginal *candidiasis* in diabetic pregnant women who were symptomatic was about 78%. Incidence of vulvovaginal *candidiasis* in Gestational Diabetic pregnant women who were asymptomatic was about 22% (refer table 1). Based on age group on *Candida* positive Gestational Diabetic pregnant women are majority of them were in the age group of 26-30 years and its incidence of about 64%, while 20-25 years of age and its incidence of about 12%, and 31-35 years of age and its incidence of about 24% (refer table 2). Majority of women in vulvovaginal *candidiasis* in Gestational Diabetic pregnant women is multigravida & its incidence was about 74%, while primigravida and its incidence is 26 % (refer table -3). Most commonly vulvovaginal *candidiasis* seen in Gestational Diabetic Pregnant women is third trimester & its incidence was about 56.52%, while 1st trimester incidence was about 13.04%, and 2nd trimester incidence was about 30.43% (refer table 4). Most common symptom seen in vulvovaginal *candidiasis* is discharge per vaginum was about 100%, itching was about 56.72%, while painful micturition was about 13% , dyspareunia was about 4.34% (refer table 5). culture sensitivity is more sensitivity and specificity than KOH mount (refer table 6). Most commonly organism which was found was *Candida albicans* 95.65%, and *Candida tropicalis* which was found was 4.34% (refer table 7). Recurrence of vulvovaginal *candidiasis* in Gestational Diabetic Pregnant Women was most commonly third trimester of pregnancy and its incidence was about 50%, while 2nd trimester of pregnancy and its incidence was about 35%, and 1st trimester of pregnancy and its incidence was about 15% (refer table-8). Vulvovaginal *candidiasis* in Gestational Diabetic Pregnant Women who were under controlled GDM was about 26%, while uncontrolled GDM was about 20% (refer table 9).

In controlled GDM women who had term pregnancy with no PROM and its incidence was about 78.26%, while uncontrolled GDM women had PROM and its incidence of about 21.73 % (refer table-10)

Table -1 Based On *Candida* Positive Gestational Diabetic Pregnant Women

Symptomatic	Asymptomatic
78%	22%

Table – 2 based on age group on *Candida* positive Gestational Diabetic Pregnant Women.

Age group	patients	percentage
20-25	6	12%
26-30	30	64 % p value <0.001
31-35	10	24%

Table-3 Based on Gravida Prevalence of Vulvovaginal *Candidiasis* in Gestational Diabetic Pregnant Women

Gravida	patients	Percentage
Primi	12	26%
Multi	34	74 % p value is <0.001

Table-4 Based On Trimester of Pregnancy Of Vulvovaginal *Candidiasis* In Gestational Diabetic Pregnant Women.

Trimester	Patients	Percentage
1 st trimester	6	13.04%
2 nd trimester	14	30.43%
3 rd trimester	26	56.52%

Table -5 Based On Symptoms of Vulvovaginal Candidiasis in Gestational Diabetic Pregnant Women.

symptom
Patients
Percentage
Vaginal discharge
46
100%
Vaginal pruritis
26
56.72%
Painful micturition
6
13%
Dyspareunia
2
4.34%

Table -6 Based on KOH wet mount/ culture sensitivity

Vulvovaginal candidiasis	KOH wet mount		Culture sensitivity	
	positive	Negative	Positive	Negative
Patients	15	31	22	24
Percentage	32.6%	67.39	47.82%	52.17

Table -7 Based on species of Candida

Species	Patients	Percentage	Sensitive to antibiotic
Candida albicans	44	95.65%	Clotrimazole
Candida tropicalis	2	4.34%	Nystatin

Table -8 Recurrences of vulvovaginal candidiasis in diabetic pregnant women According To Trimester

TRIMESTER	PATIENT	PERCENTAGE
1 ST TRIMESTER	3	15%
2 ND TRIMESTER	7	35%
3 RD TRIMESTER	10	50%

Table -9 Recurrence of Vulvovaginal Candidiasis In A Diabetic Pregnant

Vulvovaginal candidiasis	Controlled GDM No PROM	Uncontrolled GDM No PROM	P Value
PATIENTS	26	20	<0.001
PERCENTAGE	26%	20%	

Table -10 PROM IN vulvovaginal candidiasis in gestational diabetic pregnant women

PROM / NOT Vulvovaginal candidiasis	CONTROLLED GDM NO PROM	UNCONTROLLED GDM WITH PROM
PATIENTS	36	10
PERCENTAGE	78.26%	21.73<0.001

P Value is <0.001 Strongly Significant

Table 11-Based On Mode of Delivery in 100 Diabetic Pregnant Women

MODE OF DELIVERY	PATIENTS	PERCENTAGE
NORMAL VAGINAL DELIVERY	40	40%
INSTRUMENTAL DELIVERY	26	26%
C.SECTION	34	34%

Table 12 Based On Birth Weight of The Baby

BIRTH WEIGHT	PATIENTS	PERCENTAGE
<2.5KG	26	26
2.5-3 KG	30	30
3-3.5 KG	40	40
>4 KG	4	4

VI. DISCUSSION

Vulvovaginal *candidiasis* is the most common infection in women of child bearing age group. Recurrent infection occurs in 50% of pregnant women, with ¾th patient experiencing it at least in their life period^(3,4). Patient present with vaginal discharge (46% patients), vaginal pruritis (26%patients), painful micturition is (6% patient), dyspareunia. (2%patient) . Hilalgo¹⁰ and Eckert et al⁹ also reported similar results in this study of vulvovaginal *candidiasis* in pregnant women. The study comprised majority of multigravida in whom vulvovaginal *candidiasis* was reported during 1st trimester- 6 patient, 2nd trimester—14 patient, 3rd trimester –26 patient. Similar of this study, Omar² reported that multigravida suffer more from vulvovaginal *candidiasis* than primigravida (24.6%) while Limia¹⁰ and Xu Sobel³, reported highest rate of *Candida* infection in third trimester of pregnancy. High vaginal swab culture in this study, showed vulvovaginal *candidiasis* in 47.82% pregnant women when compared to 32.6% in KOH wet mount (table-). Similar results (43% & 46.6%) were documented by Donders¹¹ et al and Levett¹². KOH mount was reported as 40- 60% sensitive by different workers, however, false positive results were also observed with variable frequency^{13, 14}. Although culture is the most sensitive method for the diagnosis of vulvovaginal *candidiasis*. Clinicians usually recommended diagnosis based on KOH and culture sensitivity. Therefore, diagnosis can be confirmed only by KOH mount and culture sensitivity. Recurrence of vulvovaginal *candidiasis* can occur in uncontrolled gestational diabetic pregnant women, due to poor glycemic control along with vaginal *candidiasis* can cause PROM (21.73), this can be reduced if we give ideal treatment by correcting the hyperglycemia and also treating vaginal candidiasis for its good maternal and fetal outcome. Although recurrent episodes of vaginal candidiasis are common, a marked proportion of women with chronic and recurrent infection may present first time during pregnancy,^{7, 15}. Complication of is vulvovaginal *candidiasis* Candida chorioamniotitis, subsequent preterm delivery. . Premature neonates are severely endangered by fungal infection because of their immature immune system. During delivery, transmission can occur from the vagina of infected mother to the newborn, giving rise to congenital *Candida* infection. Infants with the oral thrush can give rise to nipple *candidiasis* in breastfeeding mothers. Hence, several investigators have recommended pre-natal treatment of vaginal *candidiasis*,² However, clinical manifestation and response to therapy is largely based on empiric diagnosis of disease.¹⁵

VII. CONCLUSION

In this study, incidence of vaginal *candidiasis* is about 46% was seen diabetic pregnant women, 36% from symptomatic and 10% from asymptomatic group KOH mount and culture sensitivity was observed a valuable method for rapid and specific diagnosis. Multigravida and diabetic pregnant women were found to have significantly increased infection ratio, therefore, we recommend that multigravida and diabetic women, clinically symptomatic or asymptomatic, should be routinely screened for vaginal candidiasis during pregnancy with good glycemic control.

REFERANCES

- [1]. Eschenbach, D. A. Chronic vulvovaginal candidiasis. *New Eng. J. Med.* 2004; 351: 851-852.
- [2]. Omar, A. A. Gram stain, KOH wet mount versus culture in the diagnosis of vulvovaginal candidiasis. *East. Mediter. Health J.* 2001; 7 (6): 925-934.
- [3]. Xu, D. J. and Sobel, J. D. Candida vulvovaginitis in pregnancy. Division of infectious diseases. *Curr. Infect. Dis. Rep* 2004; 6: 56-59.
- [4]. Sobel, J. D., Faro, S., Forece, R. W., Foxman, B., Ledger, W. J. and Nyirjesy, P. R. Vulvovaginal candidiasis: epidemiologic, diagnostic, and therapeutic considerations. *Am. J. Obstet. Gynecology* 1998; 178: 203-211.
- [5]. P.A. Akah, C.E. Nnamani, P.O. Nnamani. Prevalence and treatment outcome of vulvovaginal candidiasis in pregnancy in a rural community in Enugu State, Nigeria. *Journal of medicine and medical sciences.* Vol 1, No. 10, 477-452, 2010. [Http://www.researchgate.net/publication/228337744](http://www.researchgate.net/publication/228337744)
- [6]. P.A. Feyi-Waboso, A.N. Amadi. The prevalence and pattern of vaginal candidiasis in pregnancy in Abia. *Journal of Medical Investigation and Practice.* Vol 2, 25-27, 2001. [Http://www.ajol.info/index-php/jomip/article/view/28976](http://www.ajol.info/index-php/jomip/article/view/28976)
- [7]. C.R. Wira, R.A. Rossoll. Antigen-presenting cells in the female reproductive tract: influence of sex hormones on antigen presentation in the vagina. *Immunology.* Vol. 84, No. 4, 505-508, 1995. <http://www.Ncbi.nlm.gov/pmc/articles/PMC1415167>.
- [8]. D. Novakowska, A. Kurnafiwaska, B. Stray-Pederson, J. Wilczynski. Prevalence of fungi in the vagina, rectum and oral cavity in pregnant diabetic women relation to gestational age and symptoms. *Acta Obstetricia et Gynecologic.*
- [9]. Eckert, L. O., Hawes, S. E., Stevens, C. E., Koutsky, L. A., Eschenbach, D. E., and Homes, K. K. Vulvovaginal candidiasis: clinical manifestations, risk factors, management algorithm. *Obstet, Gynecol.* 1998; 92: 757-765 Vol.83, No. 3, 251-256, 2004. DOI: 10.1111/j.0001-6349.2004.0361.x
- [10]. 4. Hidalgo, J. A. Candidiasis, eMedicine, *Obstet. Gynaecol., Psychiatry and Surgery: infectious diseases.* 2005.
- [11]. . Donders, G., Van Straeten, D., Hoof, P. and DeWet, G. H. Detection of Candida cell forms in Pap smears during pregnancy. *Eur. J. Obstet. Gynecol. Reprod. Biol.* 1992; 943: 13-18.
- [12]. Levett, P. N. Aetiology of vaginal infections in pregnant and non pregnant women in Barbados. *West Ind. Med. J.* 1995; 44: 96-98
- [13]. Eckert, L. O., Hawes, S. E., Stevens, C. E., Koutsky, L. A., Eschenbach, D. E., and Homes, K. K. Vulvovaginal candidiasis: clinical manifestations, risk factors, management algorithm. *Obstetric, Gynecol.* 1998; 92: 757-765.
- [14]. Bergman, J. J. Clinical comparison of microscopic and culture techniques in the diagnosis of Candida Vaginitis. *J. Fam. Pract.* 1984; 18: 549-553.
- [15]. Moon Dragons Obgyn information: gynecological and obstetrical information discussion. [Internet]. Moon Dragons Obgyn Information and Discussion Inc; 1996-2007 [updated 2006 March 1]. Available from: <http://www.moondragon.org/>.