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Study of Specific Dermatoses in Pregnancy and Fetal outcome on a Tertiary Care Hospital

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Abstract

Introduction: *Pregnancy can presents with multiple skin manifestations. It can be either physiological, pre-existing skin disease or development of new dermatoses. Few specific dermatoses like intrahepatic cholestasis of pregnancy and pemphigoid gestationis are associated with increased risk of prematurity, Intrapartum fetal distress, preterm delivery and still births. So ante partum surveillance is recommended for patients with these diseases as they carry fetal risk.*

Objective: *To study the spectrum and frequency of specific dermatoses of pregnancy and to see fetal outcome in mother associated with these dermatoses.*

Methods: *A hospital based observational study was conducted in the Department of obstetrics and gynaecology along with collaboration of department of dermatology at Bashundhara Ad-din Medical College Hospital for a period of January 2020 to December 2022.A total 51 pregnant women were included in the study after taking informed consent.Detailed history including demographics and symptoms relating to skin disorder, site of skin lesion, onset in relation to gestational age of pregnancy, past or family history of similar lesions associated with medical disorder, were filled in self administered questionnaires and physical examination was carried out by a dermatologist .*

Results: *The maximum age group of this study was 20-29 years (66.66%).More were in middle socioeconomic class group 34(66.66%). Thirty five (68.63%) patient develops specific dermatoses of pregnancy in 3rd trimester of pregnancy. Prurigo of pregnancy was most common skin lesion 30(58.82%) in study. Prematurity and intrauterine fetal growth restriction were found in 7 patients. Two patients developed intrauterine fetal death in this study.*

Conclusion: *Pregnant women are prone to suffer from a wide range of dermatological problems. These pruritic dermatoses are unique to the gravid state. A detailed history and awareness of clinical presentation, confirmation of the diagnosis and the most appropriate laboratory evaluation should be done in an effort to minimize maternal and fetal morbidity.*

Key words: *Atopic eczema of pregnancy a) Eczematous type, b) Prurigo of pregnancy, c) Puritic folliculitis of pregnancy, Polymorphic eruption of pregnancy, Pemphigoid gestationis, Intra hepatic cholestasis of pregnancy, Specific dermatoses of pregnancy*

Introduction:

Pregnancy is associated with significant changes in all organ systems of the body including skin. Common physiological changes include linea nigra, melasma, stria, palmar erythema, varicosities and acrochordens[1]. However there are some changes that are purely

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pathological and these are termed as pregnancy specific dermatoses (PSDS). These include a number of distinc and identifiable conditions:

1. Atopic eruption of pregnancy. This includes
   a) Atopic eczema of pregnancy
   b) Prurigo of pregnancy
   c) Pruritic folliculitis of pregnancy
2. Polymorphic eruption of pregnancy
3. Pemphigoid gestationis
4. Intra hepatic cholestasis of pregnancy[2]

These specific skin conditions occur during pregnancy or in the postpartum period and range from benign and transient to more severe and chronic.[3] These dermatological manifestations can cause discomfort, distress or may have potential risk to both the mother and developing fetus.

Atopic eruption of pregnancy is usually seen in pregnant women with a history of atopy[4] . It most likely occurs due to a change in maternal immnune response which is specific to pregnancy and exacerbates the imbalance already seen in people with atopy resulting in itching and skin lesion[5,6].

It is common skin disorder in pregnancy accounting for half of all dermatoses. In 75% patients it begins before 3rd trimester which is earlier than other dermatoses specific to pregnancy[7]. This lesion usually involve trunk and limb but can affect all parts of the body. Maternal prognosis is good and fetal health is usually unaffected but later on there might be risk of developing atopy in infants.

Polymorphic eruption of pregnancy(PEP) is a benign self-limiting disorder that commonly seen when the fetus is male .It affects 1 in 200 pregnancies and typically occurs in third trimester of pregnancy. Seventy five percent of women with PEP are primiparous[5]. Though the exact etiology is not known,It has been proposed that stretching of the skin ,damage of the connective tissue causing subsequent convertion of non-antigenic molecules to antigenic ones leading to skin eruption[8,9]. It rarely recurs in subsequent pregnancies .Only about 15% of cases begin in post-partum period[10]. In PEP fetal prognoses is usually good[11].

Pemphigoid gestationis is a rare auto immune dermatoses of pregnancy. Incidance is 1 in 50,000 to 1 in 60,000. It typically presents during the third trimester or even after delivery. It manifests with severe pruritis.

The disease process begins with an immune response within the placenta that promote abnormal expression of placental HLA class ii antigens which is accompanied by alteration in placental basement membrane. After that there is an immune response in the skin .[12, 13, 14, 15]

Pemphigoid gestations recurs in 10% women with the use of oral contraceptive pills and 75% have recurrence in post-partum period. It is associated with fetal growth restriction and preterm delivery .[16]

Intrahepatic cholestasis of pregnancy is potentially serious liver disorder that can develop in pregnancy. It is caused by buildup of bile salts within the liver cells .This results in elevated levels of bile salts in the blood. Though the underlying cause of this phenomenon during pregnancy is poorly understood[17], It may be due to elevated levels of estrogen and progesterone metabolites during pregnancy that can disrupt the influx and efflux of bile acids from liver cells[18] .It usually occurs in third trimester. Risk factors for developing intra hepatic cholestasis include personal or family history of intra hepatic cholestasis, hepatobiliary disease, history of previous intra hepatic cholestasis in earlier pregnancy and pre gestational diabetes[19].

It frequently recurs during subsequent pregnancies in 45% to 70% of cases[5] .Intra hepatic cholestasis is associated with poor outcomes of fetus .Prematurity, respiratory distress and meconium stained amniotic fluid are all risks. Still birth can occur when bile acid levels are more than 100 micromoles[5].

As some of the specific dermatoses may influence pregnancy and fetal health which can be countered effectively if diagnosed early. So the study was undertaken to know the prevalence and type of pregnancy dermatoses and its influence on fetal outcome.

Materials and Methods:

This is a hospital based observational study, which was conducted in Department of obstetrics and gynaecology along with collaboration of Department of Dermatology of Bashundhara Ad-Din Medical College Hospital.

This study was done over a period of 3 years. Ethical clearance was taken from hospital authority. Total 51 patients were recruited for the study after obtaining informed consent from them. A detailed obstetric history including parity and gestational age, significant events in the previous pregnancy and medical history were noted to rule out any systemic diseases. The patients were then examined thoroughly at the initial presentation by a dermatologist and full clinical details were noted.

The personal and clinical data pertaining to patients such as clinical features, exacerbating and relieving factors, distribution of dermatoses, sites of involvement and morphology of skin lesions were also recorded as per the present proforma. Routine investigations including liver function tests were done in all cases. Skin biopsy were done only when recommended by dermatologist. The patients were then classified into distinct subgroups of pregnancy specific dermatoses, depending on the clinical features and investigation reports. The frequency and mode of presentation, duration of illness, gestational age of occurence, associated comorbidity, were studied. Relevant systemic examination was carried out . All cases were followed upto end of delivery to know fetal outcome.

Results:

Demographic characteristics, physical examination findings, clinical diagnosis, their association with pregnancy status and fetal outcome were evaluated.

Table-I

Demographic variables

Number of patients : 51(n)

Age in Years	Number of patient	Percentage
15-19	11	21.57%
20-29	34	66.66%
30-40	6	11.76%
Socio-economic condition		
Low	7	13.73%
Middle	34	66.66%
High	10	19.61%

Table-II

Distribution of patients according to clinical presentation

Gravidity	Number of patient	Percentage
Primi	25	49%
Multi	26	50.98%
Gestational age of diagnosis		
First trimester	2	3.92%
Second trimester	14	27.45%
Third trimester	35	68.63%
Family history of similar disease		
Yes	12	23.52%
No	39	76.47%
Drug history		
Yes	7	13.73%
No	44	86.28%
Site of skin involvement		
Generalised	37	72.56%
Abdomen and trunk	3	5.88%
Upper extremities	1	1.96%
Lower extremities	9	17.65%
Both upper and lower extremities	1	1.96%
Face and Scalp	0	0
Associated comorbidity		
Anaemia	16	31.37%
Jaundice	0	0%
Diabetes Mellitus	3	5.88%
Hypertension	1	1.96%
Diabetes Mellitus and Hypertension	1	1.96%
No comorbidity	33	64.7%

Table-III

Clinical diagnosis

Clinical diagnosis	Number of patient (51)	Percentage
Atopic eczema of pregnancy	2	3.92%
Prurigo of pregnancy	30	58.82%
Puritic folliculitis of pregnancy	0	0
Polymorphic eruption of pregnancy	16	31.37%
Intrahepatic cholestasis	2	3.92%
Pemphigoid gestationis	1	1.96%

Table-IV
Fetal Outcome

Disease n= 51	Preterm baby		Intrauterine growth restriction		Fetal Death	
	No n=7	% 13.72%	No n=7	% 13.72%	No N=2	% 3.92%
Atopic eczema of pregnancy	1	14.28%	0	0%	0	0%
Prurigo of pregnancy	5	71.42%	4	57.14%	0	0%
Polymorphic eruption of pregnancy	1	14.28%	2	28.57%	0	0%
Pemphigoid gestationis	0	0%	0	0%	1	50%
Intrahepatic cholestasis	0	0%	1	14.28%	1	50%

Discussion

In our study most patients 34 (66.66%) belonged to middle socio - economic class. Most of the patients were among 20-29 years which is reproductive age. There was no significant difference between number of primi and multi gravid patient. Most patients 35 (68.63%) presented at third trimester. Some other indians studies also had similar findings [20,21] . Vaughan Jones et al found that 49% of specific dermatoses occurred during third trimester[22]. This is because the maximum hormonal changes occurs in the third trimester. In this study most of the patients had no positive family history of such lesion .It is controversial to the study done by Probha Dawadi Bastola where 50% case had positive family history[23,24]

Six patient(11.76%) had similar lesions in previous pregnancy. No significant drug history found in this study group . In our study most patients 37 (72.56%) presented with generalised skin lesion. Only 1 patient (1.96%) presented with lesion on upper and lower extremities. No lesion found on face and scalp. Sixteen patients (31.37%) were anaemic in our study. Anaemia is common as many patients become pregnant with low hemoglobin level .No patient found with jaundice. Diabetes was associated in 4 (7.84%) patients in our study. Both diabetes and hypertension was found in 1 patient. Pruritis was the common symptom of our study. This finding was consistent with the study done by Shivakumar and Madhavamurthy [20]. Prurigo of pregnancy seen in 30 (58.82%) patients which is maximum. It is consistent with study done by kroumpou ZOSG et al where prurigo of pregnancy was the most frequent puritic dermatoses in pregnancy with a personal and family history of atopy[24]. Polymorphic eruption of pregnancy seen in 16 (31.37%) patients. This is in contrast to the figures quoted by puri et all (62%) [25]and Das et al [26]. Intrahepatic cholestasis found in 2 cases(3.92%) in our study . Wordwide the incidence rate of intrahepatic cholestasis is between 0.2 to 2% of pregnancies.[27] Atopic eczema of pregnancy found in 2 (3.96%) patients in our study. This result is contrast to results with Vaughan Jones et al [21].Phemphigoid gestationis is found in only 1 (1.96%) patient in this study. This may be due to the fact that this is a rare, auto immune,dermatoses associated with pregnancy[28] and rarely with trophoblastic malignancy or molar pregnancy[29]. No pruritic folliculites of pregnancy found in this study as it is also a rare disease.[30,31,32].

In our study preterm baby found in 7 (13.72%) patient out of 51 patients, Among them maximum 5(71.42%) was in prurigo of pregnancy. This may be due to the fact that patients with prurigo of pregnancy were maximum in our study group and there may be other associated factors related to preterm labour. Intrauterine growth restriction also found in 7 (13.72%) out of 51 patients. Among them 4(57.14%) found in prurigo of pregnancy, 2(28.57%) in polymorphic eruption of pregnancy and 1(14.28%) found in Intrahepatic cholestasis of pregnancy. It is similar to study done by Fuzhen song ,Yuanyuan chan , where high risks of IUGR were found in pregnant women with high sTBA (serum total bile acid.)[33]

Fetal death occured in 2 (3.42%) out of 51 patients. Among them 1 (50%) in pemphigoid gestationis and 1 (50%) in intra hepatic cholestasis of pregnancy. This is contrast to study done by Lin Lin ,DDS,MD where fetal death occurs in (7.7%) of pemphigoid gestationis[34] .

Limitation : Sample size is small, it is a single centre study. And there was no control group.

Conclusion:

Prurigo of pregnancy and polymorphic eruption of pregnancy are the most common specific dermatoses experienced during pregnancy in our study. Though not much similar to other studies even then ,preterm baby related to atopic eczema of pregnancy, prurigo of pregnancy and polymorphic eruption of pregnancy in this study was common.

As well as IUGR has been found in prurigo, polymorphic eruption and Intrahepatic cholestasis of pregnancy. Fetal death was discovered significantly in intrahepatic cholestasis of pregnancy and pemphigoid gestationis. So, to avoid issues and fetal outcome early consultation with dermatologist and meticulous antenatal surveillance is necessary.

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