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SPECTRUM OF DERMATOLOGICAL DISORDERS IN PREGNANCY: INSIGHTS FROM A TERTIARY HEALTH CARE CENTRE

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ABSTRACT

Objective: To evaluate the effects of dermatological disorders during pregnancy on maternal and fetal health. **Material and Methods:** A prospective observational descriptive study was conducted in outpatient and inpatient department of Obstetrics and Gynaecology in collaboration with department of Dermatology, Venereology and Leprology, Pt. B. D. Sharma PGIMS Rohtak after obtaining approval from Scientific Research and Ethics Committee. Patients with physiological skin changes during pregnancy were excluded. Eighty pregnant women presenting with new-onset or exacerbated dermatological conditions were enrolled. A comprehensive clinical evaluation, diagnostic investigations, and follow-up were performed. Data was analyzed statistically. **Results:** Out of 80 pregnant women enrolled, 48 (60%) had pregnancy-specific dermatoses, 21 (26.3%) had infectious dermatoses, and 11 (13.7%) had other dermatological disorders. Intrahepatic cholestasis of pregnancy (ICP) was the most common pregnancy-specific dermatosis (40%), followed by atopic eruption of pregnancy (13.8%) and polymorphic eruption of pregnancy (6.3%). Infectious conditions included scabies (11.3%), tinea corporis (7.5%), chickenpox (3.8%), genital herpes (2.5%), and tinea cruris (1.3%). Most cases (77.5%) presented in the third trimester, except atopic eruption, which appeared earlier. Pruritus was the universal complaint in ICP, whereas pemphigus vulgaris and vitiligo manifested primarily with lesions. The rural residence, lower socioeconomic status, and exposure to irritants such as detergents were identified as aggravating factors. Maternal complications included pre-eclampsia (25%), preterm labor (10.4%), and postpartum hemorrhage (14.6%) among ICP cases. Fetal distress (29.2%), low birth weight (51.2%), birth asphyxia (27.1%), and stillbirths (8.3%) were significantly more common in pregnancy-specific dermatoses, particularly ICP. NICU admissions were also higher in this group (33.3%). **Conclusion:** The findings of present study showed that pregnancy specific dermatoses and infections are the mainstay of dermatological disorders during pregnancy while a sizeable proportion of women also have other skin disorders like pemphigus vulgaris, psoriasis etc. Majority of maternal and perinatal complications were seen in pregnancy specific dermatosis group especially in ICP subjects. Utmost care is advocated for these patients.

KEYWORDS: Pregnancy -specific dermatoses, intrahepatic cholestasis of pregnancy (ICP) ,atopic eruption of pregnancy (AEP) Polymorphic eruption of pregnancy (PUPPP).

INTRODUCTION

Pregnancy is accompanied by profound immunologic, metabolic, endocrine and vascular change which make pregnant women susceptible to changes of skin and appendages, both physiologic and pathologic. These changes are a positive adaptation of the mother to accommodate and support the fetus as it grows and develops throughout gestation.[1] Skin changes in pregnancy can be separated into physiologic changes, pre-existing dermatoses that can be aggravated or improved during pregnancy and dermatoses that are specific to pregnancy.[2] These changes can be categorized in three categories. First include various benign skin conditions due to physiological and hormonal changes like striae gravidarum, melasma, nail and vascular changes. Pre-existing skin conditions which flare-up during pregnancy are included in second category. Third category have several pregnancy specific dermatoses.[3] Some pre-existing dermatoses may be exacerbated or ameliorated by pregnancy due to depressed cell-mediated immunity makes the pregnant woman susceptible to more severe and frequent infections like candidiasis.[4-6] Reduced cell-mediated immunity during normal pregnancy probably accounts for the increased frequency and severity of certain infections such as candidiasis, herpes simplex and varicella zoster. Candida infection, genital warts and herpes simplex virus (HSV) can all be transmitted to the baby during childbirth.[7]

Ambros- Rudolph et al include four main conditions under dermatoses of pregnancy[8]

1. Atopic eruption of pregnancy (AEP)
2. Polymorphic eruption of pregnancy (PEP)
3. Pemphigoid gestationis and
4. Intrahepatic cholestasis of pregnancy (ICP)

While Atopic eruption of pregnancy (AEP) starts significantly earlier, Polymorphic eruption of pregnancy (PEP), Pemphigoid gestationis (PG), and Intrahepatic cholestasis of pregnancy (ICP) present in late pregnancy. Atopic eruption of pregnancy is the most common pregnancy-specific dermatoses followed by polymorphic eruption of pregnancy.

ICP is a reversible form of hormonally triggered cholestasis that typically develops in genetically predisposed individuals in late pregnancy. Pemphigoid gestationis and intrahepatic cholestasis of pregnancy carry fetal risk and require antenatal surveillance.[9] Therefore, a strict watch for possible complications and appropriate management at an early stage is possible. A careful history and examination with judicious use of investigations shall help to arrive at a diagnosis and in the prompt institution of treatment.[10]

We designed this descriptive study to evaluate the clinical profile of pregnant women with skin disorders and their impact on maternal and fetal health.

MATERIAL AND METHODS

This study was conducted in outpatient and inpatient department of Obstetrics and Gynaecology in collaboration with department of Dermatology, Venereology and Leprology, Pt. B. D. Sharma PGIMS Rohtak after obtaining approval from Scientific Research and Ethics Committee.

Study Design: A prospective observational descriptive study.

Study period: One year.

Study Sample: Eighty pregnant women presenting with newonset or exacerbated dermatological conditions were enrolled.

Inclusion Criteria

All pregnant women who presented with itching and/or skin lesions of new onset during pregnancy or exacerbation of preexisting skin lesions prior to pregnancy were included.

Exclusion criteria

Physiological skin changes during pregnancy.

METHODOLOGY

All the patients attending gynaecology or dermatology OPD after obtaining detailed informed and written consent, cases were subjected to detailed history taking including age, parity and chief complaint related to skin lesions, presence of itching, onset of lesions related to duration of pregnancy, duration of illness, similar complaints in previous pregnancy, exacerbating and relieving factors. Past history, obstetric history and family history of skin lesions, and associated medical disorders were also recorded. All patients underwent complete general physical, systemic, and cutaneous examination. Cutaneous examination including mucosa, scalp, nails, and external genitalia was done. The morphology of skin condition, distribution and site of lesion, duration of illness, time of occurrence in relation to trimester, and their exacerbating factors and relieving factors were noted.

Investigation- Haemoglobin, ABO-Rh, HIV, HCV, HBsAg, Thyroid function test, Glucose challenge test, Urine complete examination and VDRL test were done in all cases.

In all cases having pruritis, liver function test (AST, ALT, ALP, Serum total bilirubin, Direct and Indirect bilirubin) and other specific dermatological investigation if required were done. Dermatological investigations like skin biopsy, Tzanck smear, slit skin smear, KOH mount for fungal infections, dermatoscopy, trichoscopy, woods lamp examination, wet mount was done when and where required. Treatment was given according to disease. Effect of skin condition on maternal and fetal morbidity

were recorded. Patients were followed upto six weeks post-partum.

DATA ENTRY AND STATISTICAL ANALYSIS

Data was analyzed and statistically evaluated using SPSS (Statistical package for social studies) version 24.0. 'P' value less than 0.05 was considered statistically significant.

RESULTS

Table 1 shows that out of 80 patients, maximum number of patients had pregnancy specific dermatoses (60.0%), followed by infectious disease of pregnancy (26.3%) and 13.7% had other skin disorders such as pemphigus vulgaris, psoriasis, vitiligo etc.

Figure 1 shows that maximum proportion of patients were in the age group of 26-30 years in all type of skin disorders. Mean age was significantly higher in specific dermatoses group (p value= 0.01). Majority of skin disease patients were primipara. In our study we noticed that skin disorders were mostly observed among lower middle socio-economic status i.e. 43.8.It was observed that infectious disease of pregnancy seen in lower middle (38.1%) or lower socio-economic status (38.1%).

Figure 2 shows gestational age at the onset of lesion in different skin disorders. Most of the patients had onset of manifestation (77.5%) in 3rd trimester of pregnancy.

Table 2 shows presenting symptoms in different skin disorders.

All patients of ICP reported with pruritus. Patients of pemphigus vulgaris and vitiligo presented with skin lesion only. All other patients presented with either skin lesion or pruritus or both.

Table 3 depicts the site of skin manifestation in different skin disorders in patients of ICP, skin manifestations were present all over the body while in AEP and PEP, skin lesions were mainly seen on abdomen, upper limb and lower limb.

Skin manifestations in patients of vitiligo, pemphigus vulgaris, atopic eruption and psoriasis were present before pregnancy and persisted throughout the pregnancy with exacerbation of symptoms and relieved on treatment.

In our study aggravating factors in different skin disorders was soaps/detergents (n=9, 18.8%) followed by pollens (n=1, 2.1%) and cold/lemon exposure (n=1, 2.1%) and relieving factors were coconut oil or moisturisers.

Table 4 shows effect of deranged AST and ALT on fetal outcome in ICP subjects (n =32).

Table 5 - shows maternal outcome in different skin disorders - In our study antenatal complication in infectious diseases group of pregnancy was PROM/PPROM. In specific dermatoses group were preterm labor and APH, pre-eclampsia, GDM. The intrapartum complications of infectious diseases group reported were; chorioamnionitis, failed induction, fetal distress still birth, failed induction, prolonged labour.

PPH was the most common postpartum complication (14.6%) reported among ICP patients.

Figure 3 highlights perinatal complications - birth asphyxia, Low birth weight. NICU admissions were also significantly higher in specific dermatoses group (33.3%) compared to infectious disease of pregnancy group (4.8%) and other skin diseases (0%). All these findings indicated that most of the maternal and perinatal complications were observed in ICP subjects.

In the present study, infectious disease group had earliest regression of skin lesions followed by specific dermatoses group. Most of the patients had antenatal regression in infectious disease group (57.1%), compared to postnatal regression in specific dermatoses group (93.7%) and other skin disease group (54.5%), Difference was found to be statistically significant (p value <0.001).

Table1: Type of skin disorders in study subjects (n=80)

	Number	%
Specific dermatoses		
ICP	32	40.0
Atopic eruption of pregnancy	11	13.8
PUPPP	5	6.3
Total	48	60.0
Infectious disease of pregnancy		
Scabies	9	11.3
Tinea cruris	1	1.3
Tinea corporis	6	7.5
Chicken pox	3	3.8
Genital herpes	2	2.5
Total	21	26.3

Other skin diseases		
Pemphigus vulgaris	3	3.8
Psoriasis	3	3.8
Vitiligo	3	3.8
Acute cutaneous lupus in SLE	2	2.5
Total	11	13.7

*ICP, Intrahepatic Cholestasis of Pregnancy; PUPP, Polyurticarial Pappules and Plaques of Pregnancy; SLE, Systemic Lupus Erythematous.

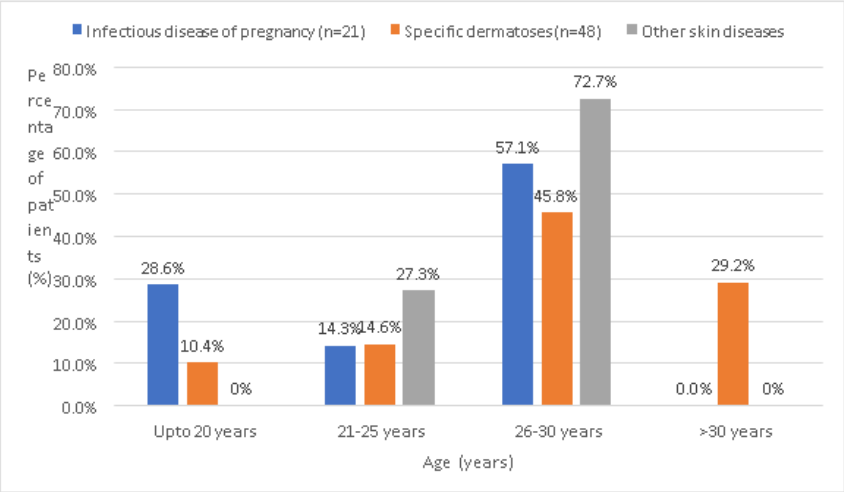

Figure 1: Age wise distribution of study subjects.

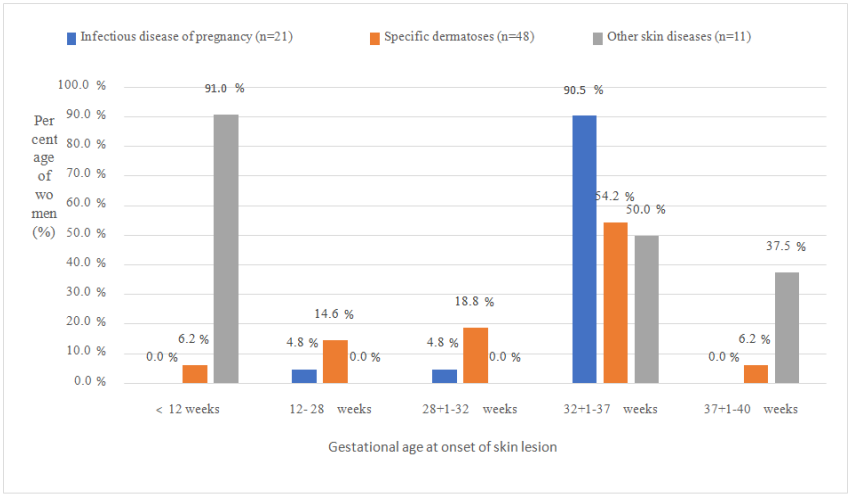

Figure 2: Gestational age at onset of lesion.

Table 2: Presenting Symptoms in different skin disorders.

	Specific Dermatoses			Other skin disoders				Infectious disease of pregnancy (n=21)
	Atopic eruption of pregnancy (n=11)	ICP (n=32)	PUPP (n=5)	Acute cutaneous lupus in SLE (n=2)	Pemphigus vulgaris (n=3)	Psoriasis (n=3)	Vitiligo (n=3)	
Pruritus only	0	32 (100.0%)	0	0	0	0	0	6 (28.6%)
Skin lesion only	6 (54.5%)	0	2 (40.0%)	0	3 (100.0%)	0	3 (100.0%)	5 (23.8%)
Pruritus and skin lesion both	5 (45.5%)	0	3 (60.0%)	2 (100.0%)	0	3 (100.0%)	0	10 (47.6%)

Table 3: Site of skin manifestation in different skin disorders.

Site of skin lesion	Generalized	Abdomen	Genitalia and groin	UL	LL	Trunk	Oral cavity	Face and neck
Specific dermatoses								
ICP	+	+	+	+	+	+		+
AEP		+		+	+			
PUPPP		+		+	+			
Infectious disease of pregnancy								
Scabies			+	+	+			
Tinea corporis	+	+	+	+	+	+		+
Tinea cruris			+					
Chicken pox		+		+	+	+		+
Genital herpes			+					
Other skin diseases								
Pemphigus vulgaris	+	+	+	+	+	+	+	+
Psoriasis				+	+			+
Vitiligo		+	+	+	+			+
Acute cutaneous Lupus in SLE							+	+

Table 4: Effect of deranged liver function tests and perinatal outcome in ICP Subjects.

AST/ALT (U/L)	100-200 (n=25)	>200 (n=7)
Healthy outcome	13 (52%)	2 (28.6%
Fetal Distress	11 (44%)	2(28.6%)
Still Birth	1 (4%)	3(42.8%)

P value = 0.42

Table 5: Maternal outcome in different skin disorders.

Maternal outcome	Infectious disease of pregnancy (n=21)	Specific dermatoses			Other skin diseases (n=11)	p value
		AEP (n=11)	ICP (n=32)	PUPPP (n=5)		
Antenatal complications						
Abortion	0	0	0	0	1 (9.1%)	<0.01
PROM/PPROM	3 (14.3%)	0	0	0	1 (9.1%)	
Preterm labour	0	5 (10.4%)	0	0	2 (18.2%)	
APH	0	1 (9.1%)	0	0	0	
Pre-eclampsia	1 (4.8%)	0	8 (25.0%)	0	0	
GDM	0	2 (18.2%)	2 (6.2%)	0	0	
Anaemia	0	0	0	0	3 (27.3%)	
Cholelithiasis	0	0	3 (9.4%)	0	0	

Intrapartum complications						
Chorioamnionitis	1 (4.8%)	0	0	0	0	<0.01
Failed induction	1 (4.8%)	1 (9.1%)	1 (3.1%)	0	0	
Fetal distress	0	0	13 (40.6%)	1 (20.0%)	0	
Still birth	0	0	4 (12.5%)	0	0	
Prolonged labour	0	0	1 (3.1%)	0	0	
Scar tenderness	0	0	0	1 (20.0%)	0	
Postpartum complications						
Pleural effusion	0	0	0	0	1 (9.1%)	
PPH	0	0	7 (21.9%)	0	0	

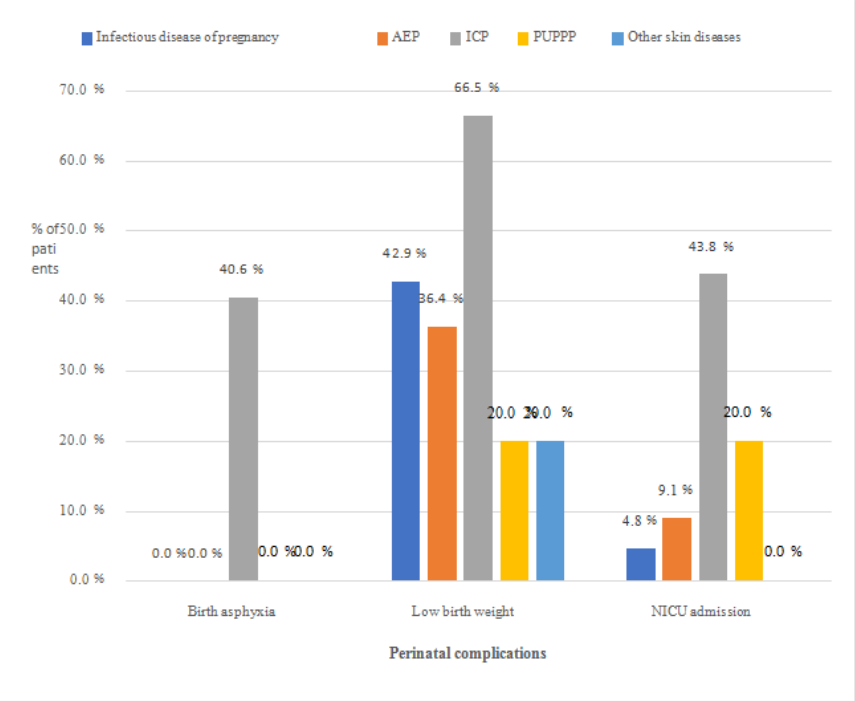

Figure 3: Perinatal complications in different skin disorders.

DISCUSSION

Out of 80 patients, maximum number of patients had pregnancy specific dermatoses (60.0%), followed by infectious disease of pregnancy (26.3%) and 13.7% had other skin disorders such as pemphigus vulgaris, psoriasis, vitiligo Similar to our study, Chaudhary et al[11] also reported most common pregnancy specific dermatoses as ICP (17.5%) followed by AEP (5.8%) and PEP (1.5%).

In study conducted by Sharath Kumar et al[12] maximum no. of patients in the study belonged to 21-25 years (45%), followed by 16-20 years(34%) whereas in present study maximum proportion of patients were in the reproductive age group of 26-30 years in all type of skin disorders which is in agreement to above conducted study.

Most of the patients with skin disorders had onset of manifestation (77.5%) in 3rd trimester of pregnancy.

In study by Indra Devi et al[13], most of the skin lesion presented in third trimester (68%), few in second trimester (32%) and none in the first trimester.

In our study, all patients of ICP reported with pruritus. Patients of pemphigus vulgaris and vitiligo presented with skin lesion only. All other patients presented with either skin lesion or pruritus or both. Study by Madhab et al[14] also reported pruritus as the commonest complaint.

In present study, ICP skin lesions developed all over the body while in AEP and PEP skin lesions were mainly seen on abdomen, upper limbs and lower limbs.

Chander et al[15] study in which the lesions in PUPPP presented as urticated papules and plaques especially over the abdominal striae and thighs. While in ICP group, pruritus affected all regions of the body, but upper (79%) and lower extremities (84%) were observed in maximum number of females.

In present study, AST/ALT between 100-200 was observed in 25 patients of ICP, out of which majority 13 (52%) delivered healthy babies followed by 11 (44%) developed fetal distress and one was still birth. Patients with AST/ALT more than 200 was observed in seven patients, out of which three (42.8%) delivered stillbirth followed by two (28.6%) healthy and two (28.6%) neonates with fetal distress. Sharma et al[16] reported significant association between AST/ALT level with foetal outcome in ICP patients. In a study conducted by Patra et al, perinatal asphyxia was observed in 28% of cases[17] According to study conducted by Sumangali et al IUD was seen in 3% of cases.[18]

In our study, antenatal complication in infectious diseases group of pregnancy was PROM/PPROM. In specific dermatoses group were preterm labor and APH, pre-eclampsia, GDM. The intrapartum complications of infectious diseases group reported were; chorioamnionitis, failed induction, fetal distress, still birth, failed induction, prolonged labour.

PPH was the most common postpartum complication (14.6%) reported among ICP patients.

In study by Onan et al[19], adverse pregnancy outcomes (obstetric risk factors and labor complications) were present in 34.4% of pregnant with inflammatory skin diseases. The types of adverse pregnancy outcomes seen in pregnant women with inflammatory skin diseases were gestational diabetes mellitus (GDM) (12.5%), thyroid disease during pregnancy (9.4%), gestational hypertension (3.1%), pre-eclampsia (3.1%), IUGR (3.1%), oligohydramnios (3.1%), polyhydramnios (3.1%) etc.

In our study, neonatal complications were birth asphyxia, Low birth weight. NICU admissions were also significantly higher in specific dermatoses group (33.3%) compared to infectious disease of pregnancy group (4.8%) and other skin diseases (0%). All these findings indicated that most of the maternal and perinatal complication were observed in ICP subjects. According to Gosh et al, Increased risk of pre term delivery (19-60%), MSL (upto 27%), Fetal bradycardia (upto 14%), fetal distress (10-41%), Fetal loss (0.4-4.1%) was reported in patients of ICP[20] In study conducted by Farooq Ret al fetal complications like respiratory distress syndrome was observed in 27 patients(38.6%), perinatal asphyxia in 23 patients(32.9%),pre-term birth in 20 patients(28.6%), IUGR in 6 patients(8.6%), neonatal death in 5 patients(7.1%), IUD in 4 patients(5.7%), hypoglycaemia in 4 patients(5.7%) and neonatal jaundice in 4 patients(5.7%).[21]

CONCLUSION

The findings of present study showed that pregnancy specific dermatoses and infections are the major dermatological disorders during pregnancy while a sizeable proportion of women also have other skin disorders like pemphigus vulgaris, psoriasis etc. Third trimester was the most opportune time for clinical manifestation of skin disease expect AEP which was observed in first and second trimesters. Rural residence and lower socioeconomic classes emerged as some of the modifiable risk factors for dermatological disorders, especially infections/ infestations. Majority of maternal and perinatal complications were seen in pregnancy specific dermatosis group especially in ICP subjects. So utmost care is advocated for these patients.

It is important for the clinician to combine the medical history, the morphologic criteria and the histopathology of the lesions to establish the correct diagnosis so as to intervene timely to prevent complications. The findings of study also suggested that the skin changes during pregnancy should be given due attention. Preventive strategies in view of the identification of modifiable risk factors need to be formulated.

No conflict of interest.

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