Original Research Article

An Observational Study On Pruritus In Pregnancy at Out Patient Department of Patna Medical College & Hospital, Bihar

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Received: 07-09-2021 / Revised: 12-10-2021 / Accepted: 12-11-2021

Abstract

Introduction: Pregnancy is a physiological state leading to hormonal, metabolic, and immunologic changes. These changes influence the functioning of the body as well as the structure of the skin and mucous membranes. Hyperpigmentation of skin, mainly visible in physiologically highly pigmented areas, for example, genitals, perineum, periumbilical skin, and areolae are seen in majority (90%) of pregnant women. **Methodology:** A cross sectional observational study was planned by the Department of Dermatology, Patna Medical College & Hospital, Patna, Bihar. Approval was obtained from the Institutional Ethics Committee. During the stipulated data collection period of 6 months from september 2019 to February 2020. A total of 215 consecutive pregnant women were recruited into this study. All patients underwent thorough medical history taking and detailed physical examination with special emphasis on pruritus. **Results:** A total of 215 patients were included in the study. The mean age of the study participants was 34.6 ± 4.3 years and the mean weeks of gestation was 31.4 ± 5.6 weeks. Among the pregnant women, 71.8% were primiparas. Multiple pregnancy cases comprised of 9.3% of total females. The prevalence of pruritus among the study participants (during entire duration of pregnancy) was 41.2%, although at the time of examination (point prevalence) it was only reported by 19.5% (n = 42) of patients. 7.2% women reported to be experiencing pruritus before their pregnancy. **Conclusion:** Pruritus in pregnancy requires taking a thorough history and complete physical examination. Laboratory studies such as liver transaminase levels, serum bile acid levels, and in selected cases skin biopsy might be indicated in order to determine the most likely diagnosis. The treatments described for the above conditions are considered safe in pregnancy.

Key Words: Pruritus, Pregnancy

Introduction

Pregnancy is a physiological state leading to hormonal, metabolic, and immunologic changes. These changes influence the functioning of the body as well as the structure of the skin and mucous membranes. Hyperpigmentation of skin, mainly visible in physiologically highly pigmented areas, for example, genitals, perineum, periumbilical skin, and areolae are seen in majority (90%) of pregnant women [1, 2]. Equally often, on the abdomen may occur the striae gravidarum, or "stretch marks," which are the result of skin stretching combined with genetic and hormonal changes [1, 3]. In nearly 75% of pregnancy cases, there is occurrence of gray-brown patches located on the face, previously termed as "mask of pregnancy," namely, melasma [1]. These women also present with some physiological hair, nail, and vascular changes, which need to be differentiated from pathological symptoms to avoid unnecessary treatment [1]. Moreover, there is a group of specific dermatoses of pregnancy, in which we can distinguish atopic eruption of pregnancy (AEP), polymorphic eruption of pregnancy (PEP), pemphigoid gestationis (PG), and intahepatic cholestasis of pregnancy (ICP) [4].

The endocrinology of pregnancy involves increased activity of maternal adrenal and pituitary glands, along with physiological development of fetal endocrine glands.Progesterone and estrogen, among other hormones (e.g., increased cortisone levels), are major factors influencing skin during pregnancy [5]. It is possible that these changes may alter the pruritus pathway and contribute to itch in susceptible individuals [6].The International Forum for the Study of Itch (IFSI) has given a classification of chronic itch to help clinicians to assign all patients with pruritus to one of three groups including subjects with pruritus on diseased (inflamed) skin (group I), those having pruritus on non-diseased (non-inflamed) skin (group II), and individuals with chronic secondary lesions (group III). After assigning all patients with pruritus to one of the groups, they are further subdivided based on pruritus etiology, including dermatological, systemic, neurological, and psychogenic pruritus. Not fitting to either of the three categories or evident to more than one category, the patient is then considered as having mixed category of pruritus, and in those subjects where the underlying cause cannot be identified pruritus is considered as being of unknown origin [7].According to recent published papers on this topic, the prevalence of pruritus including both acute and chronic, in the general population is estimated at about 8% to 10% [8]. Its frequency may differ in specific groups, affecting more commonly elderly people and some specific populations, like patients on dialysis [9]. Despite the growing interest in pruritus, the knowledge about pruritus in pregnancy is quite limited [10]. As the current classification of itch has changed the approach to this symptom, we performed a cross-sectional observational study to better evaluate the prevalence and characteristics of pruritus among pregnant women.There is a dearth of information on pruritus in pregnancy in this part of the country. Physicians catering to pregnant women may underestimate this problem statement due to this lack on data and thus leading to clinical misdiagnosis or misinterpretation. Most published papers concerning this symptom during pregnancy focused mainly on itch occurring in intrahepatic cholestasis of

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pregnancy (ICP) and other pregnancy-specific dermatoses, thus neglecting, to some extent the area of idiopathic itch in pregnant women.

Methodology

A cross sectional observational study was planned by the Department of Dermatology, Patna Medical College & Hospital, Patna, Bihar. Approval was obtained from the Institutional Ethics Committee. During the stipulated data collection period of 6 months from september 2019 to February 2020. A total of 215 consecutive pregnant women were recruited into this study. All patients underwent thorough medical history taking and detailed physical examination with special emphasis on pruritus.

All study participants were assessed for the severity of pruritis according to the Visual Analogue Scale (VAS) and the 12-Item Itch Questionnaire (12-IQ). The VAS is a 10-cm long horizontal line on which the patient indicates the point corresponding to her pruritus intensity, ranging from "no pruritus" to "worst pruritus imaginable" [11]. VAS was initially used to assess the severity of pain, but it is now widely used as a tool to measure itch intensity. Finally, it was validated for itch assessment in 2012 [11]. In clinical studies, it is highly recommended to use at least two methods of assessment of the intensity of pruritus [11]. Keeping this in mind, all participants classified as "no pruritus," "mild pruritus," "moderate pruritus," "severe pruritus," and "very severe pruritus." All pregnant women with pruritus were asked to indicate the most severe pruritus experienced within the period of previous three days [12]. The 12-IQ consists of 12 questions about various aspects of pruritus giving the final score ranging from 0 (no pruritus) to 22 points (the most severe pruritus).

All results were analyzed using the Statistical Package for Social Sciences (IBM, Chicago) ver 20.0. Descriptive statistics was performed and results have been depicted in form of numbers and tables. The significance of the observed differences between groups has been determined by Chi square test with Yates's correction, if necessary. Correlations between tested parameters were verified with Spearman rank correlation test. A p value lower than 0.05 was considered as statistically significant.

Results

A total of 215 patients were included in the study. The mean age of the study participants was 34.6 ± 4.3 years and the mean weeks of gestation was 31.4 ± 5.6 weeks. Among the pregnant women, 71.8% were primiparas. Multiple pregnancy cases comprised of 9.3% of total females.

The prevalence of pruritus among the study participants (during entire duration of pregnancy) was 41.2%, although at the time of examination (point prevalence) it was only reported by 19.5% (n = 42) of patients. 7.2% women reported to be experiencing pruritus before their pregnancy. Among the women with itch, majority had a singleton gestation and only 13.9% had multiple pregnancy. Pruritus was more frequently connected with singleton pregnancy (singleton pregnancy: 26.9% versus multiple pregnancy: 13.9%, p = 0.01); however, its prevalence was unrelated to the number of previous pregnancies and number of live births. Detailed data is demonstrated in table 1. The patient (n = 42) who had complaint of itching at the time of examination were classified according to current classification of itch. It was observed that 5 out of 42 women with pruritus had dermatologic itch connected with specific dermatoses of pregnancy (AEP, PEP, and PG). The second subgroup, where systemic itch was diagnosed, consisted of 12 patients. In this group itch was attributed to ICP (n = 7), hypothyroidism (n = 3), gestational diabetes (n = 1), and chronic hepatitis C virus infection (n = 1), as all these diseases are known to be related to chronic itch. However, we cannot exclude the possibility that at least in some women in this group, the systemic disease was not causative but just coincidental to chronic pruritus. In the remaining participants with pruritus (n = 25), the underlying cause of pruritus could not be established and it was classified as pruritus of unknown origin.

Pruritus on average started at 31.4 ± 5.6 weeks of gestation. In most pregnant women, it started after 25th weeks, although at the latest this symptom appeared at 38th weeks. Most commonly pruritus affected the abdomen and chest altogether (87.3%), hands (39.6%), and feet and lower legs (43.3%). Surprisingly, only 4.4% women suffered from itch affecting the anogenital area. Almost one-third of women with pruritus presented with secondary lesions. Approximately two-third of women suffered from pruritus daily. Characteristic sensation of the pruritic area and interference in the sleep pattern has been shown in table 2. Heat, dry air, and sweat were the most important factors exacerbating pruritus.

The mean intensity of pruritus measured with VAS was 4.2 ± 2.6 points ranging from 0.5 to 10 points; 16.8% described it as very mild, 26.7% as mild, 45.0% as of moderate intensity, 9.2% as severe, and 2.3% person as very severe. Regarding the 12-IQ the mean score was 9.8 ± 3.1 points (range: 5–17 which reflected 20.7% to 78.3% of the maximal itch scoring according to 12-IQ). A significant correlation between VAS and 12-IQ scores was observed ($\rho < 0.05$).

Table 1: Table showing distribution of study participants based on various patient characteristics

Characteristics	Without pruritus	With pruritus	P value
Age (in years)	33.2 ± 5.2	34.6 ± 4.3	>0.05
Gravida	1.1 ± 1.2	0.9 ± 1.3	>0.05
Parity	0.8 ± 1.0	0.8 ± 1.2	>0.05
Weeks of gestation	30.2 ± 6.3	31.4 ± 5.6	>0.05
Singleton pregnancies	110 (51.1%)	58 (26.9%)	> 0.05
Multiple pregnancies	17 (7.9%)	30 (13.9%)	< 0.05

Table 2: Characteristics of itch as described by the study participants against their percentages

Characteristic against percentages
Itch related predominant sensation
1. Tickling 51.5%
2. Burning 42.1%
3. Tingling 21.7%
4. Pinching 19.2%
5. Prickling 12.4%
6. Numbness 0.9%
7. Painful 2.3%
Subjective perception
1. Annoying 66.7%
2. Burdensome 52.4%
3. Unbearable 29.3%

4.	Worrisome 17.6%
Trouble in sleep pattern	
1.	Interruption in sleep 64.5%
2.	Trouble in falling asleep 78.3%

Discussion

Pruritus is an unpleasant sensation. The itch during pregnancy may be because of infections, infestations, particular systemic disorders (e.g., liver or kidney dysfunction), pregnancy-specific dermatoses, and exacerbation of preexisting dermatologic conditions, like atopic dermatitis [13]. The current study tried to evaluate pruritus occurring during pregnancy and associated quality of life impairment connected with this symptom. Pruritus gravidarum might be both localized, affecting mainly breasts and abdomen, and generalized. It may accompany the specific dermatoses of pregnancy, although it can also occur without any underlying disease. As previously outlined, the true prevalence of pruritus among pregnant women is unknown. Our study showed that the frequency of itch during pregnancy is higher than previously suspected. Result of the study by Kenyon et al. [14] showed that the overall prevalence of itch during pregnancy was approximately 23%. According to our results, at certain periods of pregnancy, 41.2% of pregnant women may suffer from pruritus. The finding is consistent with previously published observations [15, 16]. Interestingly, the majority of pregnant women in our study suffered from pruritus of unknown origin. Usually the intensity of pregnancy-related pruritus was of moderate intensity. However, physicians should remember that generalized itch of greater severity (with a mean VAS = 6.6 points) commonly affecting hands and feet with deterioration during the night is frequently connected with ICP [14, 17]. Therefore, some authors classify pruritus gravidarum as with or without cholestasis [18].The cause of itch accompanying pregnancy dermatoses is still poorly understood. Although infrequent, pregnancy dermatoses can not only cause pruritus but can also carry the risk of adverse fetal and maternal outcomes [19]. The connection between progesterone and pruritus was initially taken under consideration with regard to the pathophysiology of ICP [20]. Indubitably, striae gravidarum (stretch marks) are one of the most common physiologic skin changes in pregnancy, visible in up to 90% of pregnant white women [19]. Their etiology remains unknown. Interestingly, pregnancy-associated striae may occasionally be the primary localization of PEP, a condition that typically affects primigravidas [19].In our study, the most common location of itch was the abdomen. Similar results were observed by Kenyon et al. [14]. Abdominal pruritus in pregnancy is most related to pregnancy-induced stretching of the abdominal skin. Stretching may activate dermal nerve endings leading to pruritus; however, the exact mechanism is poorly understood. In addition, damage to the collagen may induce an allergic type response contributing to the development of PEP lesions. It should be emphasized that itching appears to be a significant problem during night hours causing significant sleep disturbances in one-fifth of the pregnant women with pruritus, posing as a risk factor for miscarriage, so managing night-time pruritus is important [22].

Conclusion

Pruritus in pregnancy requires taking a thorough history and complete physical examination. Laboratory studies such as liver transaminase levels, serum bile acid levels, and in selected cases skin biopsy might be indicated in order to determine the most likely diagnosis. The dermatoses of pregnancy should be considered in the differential diagnosis of pruritus and managed accordingly. An accurate diagnosis must be made owing to the fact that some of these conditions are associated with an increased risk of adverse fetal outcome. The treatments described for the above conditions are considered safe in pregnancy.

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Conflict of Interest:Nil Source of support:None