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ORIGINAL ARTICLE

A Clinical Study about the Frequency of Physiological Skin Changes Observed in Pregnant Females

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ABSTRACT

Objective: To find out the frequency of physiological skin changes in pregnant females.

Methods: In this descriptive cross-sectional study, 100 pregnant females presenting in outpatient departments of dermatology & gynaecology, obstetrics at Akhtar Saeed Trust Hospital Lahore were enrolled over a period of 1year from June 2020 till June 2021. All consenting pregnant females were enrolled in this study and pregnant females with pre-existing skin diseases and having specific dermatosis of pregnancy were excluded from this study. Detailed history was taken & their complete physical & dermatological examination was carried out and the findings were noted down in pre-designed performa.

Results: Physiological skin changes were observed in all the patients in our study. The agr range of patients in this study was 18-35 years, the mean age being 25.06 years. The most common cutaneous manifestation observed was hyperpigmentation out of which linea nigra was commonest finding present in 92% of patients, hyperpigmentation on various parts of body in 16 %, melasma in 12% of patients and 76% of patients showed vascular changes.

Practical Implications: The rationale of this study is to assess the frequency of physiological changes occurring in pregnant females. So that they can be promptly and correctly diagnosed and thus reducing the emotional and financial stress on community.

Conclusion: Pregnant females suffer from a variety of physiological skin changes. Awareness & recognition of these changes will help in timely diagnosis and treatment.

Keywords: Pregnancy, skin physiological changes, hyperpigmentation, melasma, vascular changes

INTRODUCTION

Females during pregnancy go through wide range of variations in endocrine, metabolic & hormonal functions.[1,2] These changes thus make the pregnant female susceptible to physiological & pathological changes in both skin & appendages. These changes support the fetus as it grows during pregnancy.[2] The group of most commonly occurring physiological skin changes in pregnancy include striae gravidarum (connective tissue changes), varicosities, gingival hyperplasia, spider angiomas, palmar erythema (vascular changes), hyperpigmentation, melasma (pigmentary changes), glandular changes like acne, hyperhidrosis, certain nail & hair changes.[3,4]

Out of many physiological changes occurring during pregnancy striae gravidarum & pigmentary changes are most commonly found in up to 90% of patients.[5] Striae are most commonly found on breasts, abdomen & buttocks due to collagen rupture, long linear bands appear. These most commonly appear during 6th to 7th month of pregnancy & then fade out but never completely disappear .[4,6] Role of various hormonal factors, genetic changes & weight gain has been found to be responsible for striae.[6]

Most of the pregnant females show pigmentary changes commonly generalized & mild.[7] Other than that there can be accentuation of hyperpigmentation in normally pigmented areas like genitalia, inner thighs, neck, axillae, areolae & recent scars.[6,7] Melasma & linea nigra are the most commonly encountered pigmentary changes in pregnancy. [8,9]The cause of this increased pigmentation in pregnancy is considered to be due to increased activity of alpha & beta melanocyte stimulating hormone, estrogens & progesterone.[7,8]

Vascular changes can also be encountered during pregnancy because of increased levels of circulating estrogen. Commonly found vascular changes are spider angiomas, palmar erythema, gingival hyperemia & varicosities.[8] Varicosities mostly appear due to decreased vessel tone & partial destruction of vessels due to gravid uterus leading to incomplete venous return.[6]

Changes in glandular activity are also seen in pregnant females such as apocrine gland activity is decreased, activity of eccrine & sebaceous gland is increased. All this leads to hyperhidrosis, acne & Montgomery tubercles.[6,8,10]

Pregnancy also leads to certain nail & hair changes in female. Hair changes include alopecia, hypertrichosis & hirsuitism which is mostly due to androgens from ovary.[10,11] Nail changes in pregnancy include brittleness, koilonychia, beau's lines & even onycholysis.[12] These changes mostly start in 6th week of pregnancy.8 The exact reason for these changes is still unknown.

So the increase in function of maternal pituitary, adrenal & thyroid glands & the production of various proteins & steroid hormones by fetoplacental unit causes these physiological changes to occur. [2,13,]

Almost all of the physiological changes occurring during pregnancy are transient that is they resolve after delivery, but some may persist. The persistence of these changes can sometimes lead to undue stress on females.

So, the reason for this study was to assess the frequency of physiological skin changes occurring in pregnant females. So they can be promptly & correctly diagnosed. This reduces undue emotional stress on patient & financial stress is reduced on community.

MATERIALS & METHODS

Study Design: Descriptive cross-sectional study

Setting: Dermatology and gynaecology outdoor departments of Akhtar Saeed Trust Hospital

Study Population: Pregnant females presenting in dermatology and gynaecology outdoor departments

Sample Size: 100 pregnant females

Sampling technique:-Inclusion Criteria: All consenting pregnant females

Exclusion Criteria: Pregnant females with pre-existing skin disease and pregnant females with specific dermatosis of pregnancy

Development of Instrument: Predesigned questionnaire used.

Reliability and Validity: Reliability and validity of this study was ensured.

Data Collection Procedure: 100 patients were enrolled over a period of 1year from June 2020 till June 2021 after attaining permission from ethical committee of college. A predesigned proforma was filled after obtaining consent from patients. In this proforma demographic data was recorded. Their detailed history

was taken, physical & dermatological examination was performed. The findings were recorded in the proforma. History was taken regarding the main skin complaints like their duration, development of skin lesions & their relation to gestational age. Any associated medical condition was noted down. In detailed dermatological examination any skin, mucosal, hair & nail changes were noted. Related systemic examination was done & relevant investigations were sent if needed.

Data Analysis Plan: In the end the data was analyzed using SPSS VERSION 15. Frequencies were also recorded of the various dermatological findings.

RESULTS

The age range of the patients enrolled in this study was 18-35 years, mean age of was 25.06 years.

Table 1: Age group of patients

Age group	No. of patients (%)
<20 years	20%
21-30 years	70%
31-40 years	10%
Total	100%

Table 1 showing the age group of patients in the study. 36% of patients were primigravida & 60% of patients were multigravida. The patients presenting in first trimester were 16%, in 2nd trimester were 36% & in 3rd trimester were 48%. The majority of patients presented with skin changes in last trimester.

Table 2: Percentage of skin manifestations according to trimester of pregnancy

Trimester of pregnancy	Skin manifestations
First trimester	16%
Second trimester	36%
Third trimester	48%

Table 2 showing percentage of skin manifestations according to trimester of pregnancy.

Figure 1: Linea Nigra

Figure 2: Melasma

Figure 3: Varicose veins

The most common cutaneous manifestation observed was hyperpigmentation. Linea nigra was commonest finding present in 92%, as seen in Figure 1. Hyperpigmentation on various parts of body like neck, areola & genitalia in 16% & melasma in 12% of patients as shown in Figure 2 . The most common presentation of melasma was the centrofacial pattern. Hyperpigmentation was followed by connective tissue changes, striae gravidarum present in 50% of patients.

76% of patients showed vascular changes. The most common vascular change found was gingival hyperemia in 40% of patients, followed by palmar erythema found in 30% of patients. 6% of patients showed varicosities on lower legs as shown in Figure 3. The complaint of pruritis was found in 10% of patients.

Table 3: Cutaneous Manifestations

Cutaneous Change	No Of Patients (%)
Pigmentation	
1. Line nigra	92
2. Hyperpigmentation on body	16
3. Melasma	12
Vascular Changes	
1. Palmar erythema	30
2. Gingival hyperemia	40
3. Varicosities / varicose veins	06
Connective Tissue Changes	
1. Striae gravidarum	50
2. Skin tags	00
Hair Changes	
1. Hypertrichosis	02
2. Diffuse hair loss	00
3. Alopecia	00
Nail Changes	
1. Brittle nails	02
2. Onycholysis	02
3. Longitudinal melanonychia	02
Sweat Glands	
1. Hyperhidrosis	08

Table 3 showing the cutaneous manifestations. Some patients in this study also showed hair changes like hypertrichosis in 2% & nail changes like longitudinal melanonychia, onycholysis & brittle nails. All these nail changes were present in 2% of patients.

DISCUSSION

In pregnant women various types of physiological skin changes are encountered. The most common age group which presented to us was 21-30 years of age & most of the patients were multigravida 60%. This is comparable to various other studies by Shivkumar V et al 14 that reported 11-20 years & 16-30 years by Raj S et al.[15] The most common physiological skin change encountered in our study patients was pigmentary change like hyperpigmentation. This is similar to the findings in other studies by Kumari R &

Vanitha P [16]. This similarity may be due to sharing of same geographical & racial characteristics. In our study linea nigra was present in 92% of patients like seen in 87.6% of patients in study by Vanitha P.[16] In a similar study by Kumari et al [9] it was present in 91.4% of patients. The onset of pigmentation was mostly in 2nd & 3rd trimester of pregnancy in our study which is comparable to the findings of other study by Kumari et al [9], this is most probably because of estrogen & progesterone from placenta that starts to function after 8th week of pregnancy & these are strong melanogenic stimulants. This finding is followed by hyperpigmentation on other body sites in 16% of patients & melasma in 12% of patients in comparison to study done by Shanza et al melasma was 63.5% of patients.[16] 50% of our patients presented with striae gravidarum which is a connective tissue change, like in study done by Rashmi Kumari [9] in which striae gravidarum were present in 90% of women. Physical factors play an important role in development of these changes like increase in abdominal girth leading to stretching. Abdomen & buttocks are most commonly affected areas. This is consistent with findings of other studies by Shanta Ikram 16 & Shah et al. [17] Vascular changes were also found in our study. Gingival hyperemia was present in 40% of patients. In other studies, the prevalence of gingival hyperemia was found to vary from 30% to 100% in patients. [19] Palmar erythema was found in 30% of patients, like found in study done by Shanza et al [16] in which it was present in 43.5% of patients. Varicosities of lower legs was found in 6% of patients which is comparable to 1% found in study done by Vanitha P. [18] Some sweat gland, hair & nail changes were also found in our patients. Hyperhidrosis due to eccrine sweat gland hyperactivity was seen in 8% of patients. Similar results in studies done by Urasaki [4] & Tyler [9]. Hypertrichosis was found in 2% of patients. Nail changes like brittle nails, onycholysis & longitudinal melanonychia was found in 2% of patients. These results are comparable to the results found in studies done by Urasaki, [4] Kumari R [9] & Shanza et al. [16]

CONCLUSION

During pregnancy, the body and skin of female passes through a variety physiological changes. Knowledge of these physiological skin changes is very important to differentiate them from pathological skin changes, so that the patients do not have to go through the stress of undue investigations. Most of all, many of these changes will regress with time or even resolve after delivery. Reassurance mainly, is thus the key to major therapy required.

Limitations: The limitation of our study is that the sample size is less.

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