

Frequency of birthmarks and transient skin lesions in newborns according to maternal factors (diseases, drugs, dietary supplements, and tobacco)

Sir,

Many studies have examined the impact of maternal diseases and the use of illicit drugs, medication, and dietary supplements during pregnancy on the health of newborns. Interestingly, only Boccardi *et al.* and Sachdeva *et al.* have correlated these factors with the presence of birthmarks and transient benign cutaneous lesions.^[1,2] Our goal here is to analyse the influence of these maternal factors on the frequency of 17 neonatal dermatoses.

We conducted a prospective study between May 2008 and November 2009, on 1000 newborns in the first 3 days of life at a perinatal clinic at Hospital Arquitecto Marcide, Ferrol Healthcare Area, Spain. Prevalence of neonatal skin lesions was determined by means of clinical diagnosis.^[3] A data collection protocol was followed in each case to identify: (1) maternal factors (diseases, toxic habits, medications, and dietary supplements) and (2) neonatal parameters (gestational age and birthweight).

Data for the quantitative variables was categorised into groups. The qualitative variables were presented as a percentage and were analysed using the χ^2 -test. The programme SPSS version 15.0 was used for the statistical analysis. Significance was established as $P < 0.05$.

Figure 1 shows the percentage of mothers with toxic habits, diseases, and medications and dietary supplements taken during pregnancy (in 989 mothers). Table 1 shows the variations in the frequency of skin lesions according to the maternal parameters. There were no significant differences in the prevalence of dermatoses in relation to maternal diseases. There were statistically significant differences for the salmon patches and erythema toxicum neonatorum in relation to toxic habits, vernix caseosa to drug intake

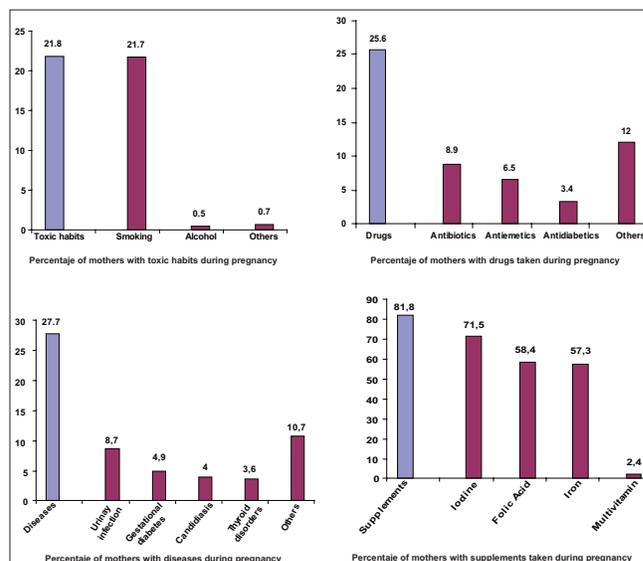


Figure 1: Percentage of mothers with toxic habits, diseases, and medications or dietary supplements taken during pregnancy

during pregnancy, and palatal cyst, vernix caseosa and jaundice in relation to dietary supplements.

The dermatoses with significant association were related to smoking and the specific group taking medication or a dietary supplement. There was less prevalence of salmon patch and erythema toxicum neonatorum in infants of smoking mothers [Figure 2]. A higher frequency of vernix caseosa was related to the administration of medication (when drug classes were individualised, there was no longer a significant difference), and dietary supplements (significant for iodine and iron) during pregnancy [Figure 3]. Maternal intake of iodine and folic acid was associated with a higher prevalence of palatal cysts. The intake of iodine, folic acid, and iron was associated with a lower risk of jaundice in the first 3 days of life.

Maternal toxic habits during pregnancy were associated with less frequent salmon patch and

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Table 1: Prevalence (%) of neonatal dermatoses in terms of maternal toxic habits, diseases, and medications and dietary supplements taken during pregnancy

Dermatosis	Total	Toxic habits			Diseases			Drugs			Dietary supplements		
		No	Yes	P	No	Yes	P	No	Yes	P	No	Yes	P
Total of neonates	100	78.2	21.8		72.3	27.7		74.4	25.6		18.2	81.8	
Sebaceous hyperplasia	75	75.7	72.4	0.331	75.1	74.7	0.903	75.9	72.2	0.241	71.9	75.6	0.298
Salmon patch	64.2	66.8	54.6	0.001*	64.4	63.5	0.787	64.1	64.4	0.922	62.1	64.6	0.511
Hypertrichosis	59	58.3	61.4	0.402	59	59	0.951	59	59	0.995	61	58.5	0.546
SP on lip	54	54.7	51.3	0.379	54.3	53	0.715	54.1	53.5	0.857	56	53.3	0.541
Palatal cyst	53.7	52.9	56.4	0.362	54.3	52	0.501	52.9	55.8	0.422	42.8	56.1	0.001*
Vernix caseosa	49.2	48.9	50	0.782	48.4	51.2	0.419	47	55.4	0.020*	39	51.4	0.002*
PD	41.5	40	46.7	0.073	42.3	39.3	0.393	41.4	41.8	0.911	39.5	41.9	0.557
Erythema neonatorum	30.6	30.5	30.7	0.961	30.3	31.4	0.731	29.4	33.9	0.173	27.4	31.3	0.311
Mongolian spot	18.9	19.4	16.9	0.411	18.5	19.8	0.633	19.7	16.4	0.237	23.6	17.8	0.072
ETN	16.7	18.8	9.1	0.001*	17.8	13.7	0.118	17.4	14.4	0.264	17	16.6	0.894
Milia	16.6	17	15.1	0.512	16.3	17.3	0.702	16.5	16.8	0.922	15.9	16.7	0.789
HG	15.3	14.4	18.3	0.157	16.1	13	0.210	16.4	12.1	0.100	19.2	14.4	0.103
Gingival cyst	13.4	12.9	15.1	0.394	13.5	13	0.817	13.1	14	0.718	12.6	13.5	0.738
Anomalies†	6.2	6.2	5.9	0.870	6.2	6.1	0.959	6.3	5.8	0.793	8.8	5.6	0.109
Jaundice	5.7	6.2	3.6	0.144	6.2	4.3	0.248	6.4	3.5	0.081	13.7	3.9	0.000*
Pallor	2.3	2.1	2.7	0.614	2.6	1.4	0.264	2.6	1.1	0.163	1.1	2.5	0.232
Suction blister	2	2	1.8	0.844	1.9	2.1	0.816	1.8	2.3	0.649	2.7	1.8	0.426

ETN: Erythema toxicum neonatorum; HG: Hyperpigmentation of the genital area; PD: Physiological desquamation; SP: Sucking pad; *Statistically significant ($P < 0.05$); †1.5% of neonates had sacral dimple, 0.8% accessory tragus, 0.6% hydrocele, 0.5% finger malformations, 0.4% preauricular dimple, supernumerary nipple, ear abnormalities, hypospadias, and cryptorchidism, 0.3% sacral tag and 0.9% others (0.4% several anomalies)



Figure 2: Generalized erythema toxicum neonatorum on the back



Figure 3: Vernix caseosa in skin folds

erythema toxicum neonatorum. The prevalence of these two dermatoses rose with higher birthweight and gestational age of the newborn.^[4] Exposure to smoking shortened the length of pregnancy and reduced the weight of the newborns by an average of 200 g. This partly explains the association of salmon patch and erythema toxicum neonatorum in nonsmokers. Some authors believe that salmon patch reflects persistence of the foetal circulatory model. At

present erythema toxicum neonatorum is considered to be an immune response to microbial colonization on the part of commensal microbes within hair follicles. Since smoking affects the cardiovascular system and innate immunity, a “direct” influence on the pathogenesis of these two cutaneous conditions cannot be ruled out.

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significantly affects foetal health. Interestingly in our study, it did not significantly influence the onset of neonatal dermatoses.^[2]

In our study, the intake of medication during pregnancy was significantly associated with an increased frequency of vernix caseosa in the newborn. This contradicts the findings of Boccardi *et al.*, who found little relationship.^[1]

The intake of dietary supplements was associated with increased prevalence of palatal cysts and vernix caseosa and decreased frequency of jaundice. An inadequate supply of nutrients during pregnancy is associated with significant foetal and perinatal morbidity. This deficiency increases the possibilities of low birthweight, prematurity, malformations, and impaired immune function, facilitating the development of infections. Palatal cysts and vernix caseosa are less common in premature and very low birthweight infants.^[5] This could be one of the reasons that an adequate supply of nutrients is related to the presence of these two conditions. Furthermore, adequate nutrients reduce the onset of jaundice, which occurs, among other predisposing factors, when there is low birthweight, lower gestational age, and congenital infections (the presence of which is reduced with adequate nutrition).

In conclusion, we found a relation among the prevalence of salmon patch and erythema toxicum neonatorum and smoking, vernix caseosa and medication intake, and palatal cyst, vernix caseosa and jaundice and dietary supplementation. Further studies would be needed to confirm these findings in terms of the degree of exposure to smoking and the dose and duration of medication taken.

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