Facial naevus count in the identification of patients at higher risk of melanoma

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Dear Editor, A total body naevus count (TBNC) > 50 is a strong predictor of melanoma.[1] Assessing TBNC requires a total body skin examination (TBSE), which is not always performed in primary care and dermatology.[2]

Previous studies identified the number of naevi on the arms as an independent predictor of TBNC and melanoma risk.[3–5] However, its assessment still requires the partial undressing of patients.

In this prospective study, we investigated whether the number of facial naevi may be considered as an independent predictor of TBNC. The study population was a cohort of 999 consecutive adult patients attending a private general dermatology clinic in São Miguel do Oeste, Brazil (Table 1). A single dermatologist (G.Z.P.) performed routine TBSE, TBNC (according to a standard international protocol),[6] and clinical and dermatoscopic evaluation of all naevi, and recorded the number of facial naevi.

A significant correlation was found between TBNC and number of facial naevi ($r = 0.65$; $P < 0.001$). The sensitivity and specificity of different cutoff numbers of facial naevi in identifying patients with a TBNC > 50 were calculated. These data were used to plot a receiver operating characteristic (ROC) curve; the area under the ROC curve was 0.864. Based on the minimum distance between the ROC curve

Table 1 Characteristics of the study population ($N=999$)

Sex	
Male	385 (38.5)
Female	614 (61.5)
Age (years), mean (SD)	38.84 (12.53)
18–30	328 (32.8)
31–40	197 (19.7)
41–50	227 (22.7)
51–60	247 (24.7)
Eye colour	
Light (green/blue)	499 (49.9)
Dark (brown/black)	500 (50.0)
Fitzpatrick skin type	
I	131 (13.1)
II	418 (41.8)
III	400 (40.0)
IV	47 (4.7)
V	3 (0.3)
BMI (kg m^{-2}), mean (SD)	24.78 (4.28)
Underweight (< 18.5)	28 (2.8)
Normal weight (18.5–24.9)	605 (60.5)
Overweight (25.0–29.9)	263 (26.3)
Obese (≥ 30)	103 (10.3)
Body naevus count	
0–10	316 (31.6)
11–50	428 (42.8)
> 50	255 (25.5)
Number of facial naevi	
0	151 (15.1)
1–5	516 (51.6)
5–10	240 (24.0)
> 10	92 (9.2)

Data are presented as *n* (%) unless otherwise stated. BMI, body mass index.

and the point (0,1) on the graph, the best cutoff value was 5 (sensitivity 73.7%, specificity 80.5%, accuracy 78.8%), while it was 6 according to the Youden index (sensitivity 69.0%, specificity 87.9%, accuracy 83.1%). The best accuracy (85.4%) was achieved with a cutoff of 8 (sensitivity 58.8%, specificity 94.5%).

The cutoff values were used together with age, sex, Fitzpatrick skin type and body mass index (BMI) as independent variables in a logistic regression model elaborated to estimate the probability of having a TBNC > 50. The *P*-value was significant for Fitzpatrick skin type and number of facial naevi in all cases; borderline significant ($P=0.049$) for sex, with a cutoff value of five facial naevi; and significant ($P=0.017$) for age, with a cutoff value of eight facial naevi.

The odds ratios for a TBNC > 50 associated with cutoff values of 5, 6 and 8 facial naevi were 12.609 [95% confidence interval (CI) 8.686–18.304], 18.228 (95% CI 12.335–26.935) and 28.005 (95% CI 17.952–43.688), respectively.

TBSE is the standard of care in skin cancer screening; it requires specific training and is time consuming.[7] Previous studies have postulated the usefulness of selected body sites as a proxy for TBNC,[3–5,8] to identify those at higher risk of melanoma, especially in a primary care setting.

Our study suggests that facial naevi count may further facilitate identification of these patients; we found a significant correlation between TBNC and the number of facial naevi ($P<0.001$).

Our study provided three possible cutoff values for facial naevus count to be used, depending on the desired sensitivity and specificity, as a screening parameter for the identification of those at higher risk of a TBNC > 50. While the use of facial naevus count alone may be useful for screening purposes, a more accurate estimate of the probability of a TBNC > 50 can be obtained by using all parameters included in our multivariable analysis. Indeed, as expected, the risk of having a TBNC > 50 was significantly higher for people with skin phototypes I–II and decreased for darker skin; moreover, when considering a cutoff of five naevi on the face, females have a slightly lower risk of a TBNC > 50. When considering a cutoff of eight facial naevi, a statistically significant, although limited, reduction in risk was observed with increasing age. For example, if a cutoff value of ≥ 5 naevi on the face is chosen for a 29-year-old man with Fitzpatrick type II skin, a BMI of 24.9 kg m^{-2} and 6 facial naevi, this method may predict that the probability of having a TBNC > 50 is 70.0%. Such a probability would be 15.6% for a person with the same characteristics but ≤ 4 naevi on the face.

Sensitivity and specificity tables for all possible cutoff values, as well as complete coefficients and *P*-values resulting from the multivariable analysis, are available upon direct request.

The proposed method, suitable for the identification of patients with high TBNC, could also be extended to non-physician healthcare providers (i.e. nurses and pharmacists) or even hair, beauty and other professionals who routinely look at a person's face during an appointment and could advise clients to seek a dermatologist in case of doubt or upon seeing a number of facial naevi associated with a high risk of melanoma.

Counting the number of facial naevi appears to be a simple, fast, low-cost and readily available triage tool to identify individuals with a high probability of having > 50 naevi on their bodies.

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