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157 | Impact of in vivo reflectance confocal microscopy on the number needed to treat melanoma in doubtful lesions.

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ABSTRACT

BACKGROUND: The number needed to treat ratio is an effective method for measuring accuracy in melanoma detection. Dermoscopy reduces the number of false positives and subsequently unnecessary excisions. In vivo confocal microscopy is a non-invasive technique which allows the examination of the skin with cellular resolution. **OBJECTIVES:** To assess the impact of RCM analysis on the number of equivocal lesions, assumed to be melanocytic, excised for every melanoma. **METHODS:** Consecutive patients (n=343) presenting with doubtful lesions, were considered for enrolment. The lesions were analysed by dermoscopy and RCM and histopathological assessment was considered the reference standard. The main outcome was the number needed to treat, calculated as the proportion of equivocal lesions, excised for every melanoma. **RESULTS:** Dermoscopy alone obtained a hypothetical NNT of 3.73, the combination of dermoscopy and RCM identified 264 equivocal lesions that qualified for excision, 92 of which were confirmed to be a melanoma; resulting in a NNT of 2.87; whereas the analysis of RCM images classified as melanoma 103 lesions with a consequent NNT of 1.12; the difference in the reduction of this ratio was statistically significant ($p < 0.0001$) between the three groups. There was no significant improvement in sensitivity when comparing the combination of dermoscopy and RCM and RCM alone (94.56% vs. 97.82%; $p = 0.043$). However, the differences between specificities were statistically significant ($p < 0.000001$), favouring RCM alone. **CONCLUSION:** The addition of RCM analysis to dermoscopy reduces unnecessary excisions with a high diagnostic accuracy and could be a means for reducing the economic impact associated with the management of skin cancer.