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19.4.2.2 Diagnostic aids for melanoma

Introduction

There are many instruments available to aid the diagnosis of primary melanoma of the skin. We have reviewed the main techniques that have an adequate literature to propose recommendations, but understand that a variety of devices have not been reviewed.

This section covers the following questions:

- What is the role of dermoscopy in melanoma diagnosis?
- What is the role of sequential digital dermoscopy imaging in melanoma diagnosis?
- What is the role of automated instruments in melanoma diagnosis?
- What is the role of confocal microscopy in melanoma diagnosis?
- What is the role of skin surface imaging (total body photography) in the early diagnosis of patients at high risk of developing melanoma?

19.4.2.3 What is the role of dermoscopy in melanoma diagnosis?

Background

Dermoscopy (dermatoscopy, surface microscopy, epiluminescence microscopy) is a technique that uses a hand-held magnifying device combined with either the application of a liquid between the transparent plate of the device and the skin, or the use of cross-polarised light. This technique allows the visualisation of diagnostic features of pigmented skin lesions that are not seen with the naked eye.^{[1][2][3][4]}

Summary of systematic review results

Meta-analyses performed on studies in a variety of clinical and experimental settings have shown that using dermoscopy improves diagnostic accuracy for melanoma.^{[5][6]} From a meta-analysis of nine level II diagnostic studies subject to varying degrees of verification bias performed prospectively in a clinical setting^{[7][8][9][10][11][12][13][14][15][16]} the diagnostic accuracy for melanoma, as expressed by the relative diagnostic odds ratio, was 15.6 (95% CI 2.9–83.7) times higher for dermoscopy compared with naked eye (clinical) examination.^[17] Importantly, the meta-analysis was restricted to studies that directly compared the two methods within each study. Sensitivity of dermoscopy was 18% (95% CI 9%–27%; $P=0.002$) higher than for naked eye examination, but there was no evidence of an effect on specificity (9% higher for dermoscopy; $P=0.18$).^[17] Subsequent to this meta-analysis one level II study has been published in a primary care setting showing results consistent with the meta-analysis (42% increase in sensitivity and 5% increase in specificity with dermoscopy compared to naked eye).^[18] However, there was a significant improvement in the confidence of