MOBILE DIGITAL DERMATOSCOPY IN VIVO FOR THE DIAGNOSIS OF MELANOMA

Lina Ivert¹, Martin Gumulka², Martin Stichenwirth³, Magnus Alderling³, Johan Heilborn³, Jan Lapins¹
¹Dept of Dermatology, Karolinska University Hospital, ²Hudcentrum Hagastaden, ³Statistician at Karolinska Institute, Stockholm, Sweden

This study was registered at the regional ethics committee (Reference 2016/75-31/4).

**Background:** The aim of the study was to compare mobile digital dermatoscopy in vivo to manual dermatoscopy, for the diagnosis of pigmented lesions.

**Methods:** Patients (n=19) were included consecutively, at a local dermatology clinic (Hudcentrum Hagastaden), during routine skin cancer screening. After informed consent, two clinically pigmented lesions per patient (n=38 lesions) were selected and investigated by three dermatologists. On each patient, the first dermatologist performed a total body examination with manual dermatoscopy (Heine Delta 20T), and evaluated two selected lesions. The second dermatologist evaluated the selected lesions by using digital dermatoscopy in vivo (iPhone 6S, Heine IC1) in standard iPhone screen magnification. The third dermatologist assessed the same lesions with identical digital dermatoscopy settings but with the opportunity to freely zoom the lesion on the iPhone screen. In all settings, lesions were assessed with polarized as well as non-polarized light in contact dermatoscopy with gel as the liquid interface, using the Revised Pattern Analysis Algorithm.

**Results:** Clinically pigmented lesions were diagnosed with manual dermatoscopy to be nevus (n=21), blue nevus (n=1), nevus spilus (n=1), lentigo (n=2), seborrheic keratosis (n=4), dermatofibroma (n=1), angioma (n=4), equivocal pigmented lesion (n=2) and suspicious melanoma (n=2). The sensitivity of pattern (reticular) was 94% comparing Manual (M) and Digital Zoom (DZ) settings and 44% comparing M and Digital (D) settings choosing M as the gold standard. The difference between the two sensitivities were significant (p-value<0.01). Moreover, sensitivities for the comparisons M vs D were 84% and M vs DZ were 95% regarding the agreement of diagnosis made by the dermatologists. The difference between these two sensitivities were significant (p-value<0.05).

**Conclusion:** Mobile digital dermatoscopy in vivo for the assessment of pigmented lesions and melanoma is a comparable and satisfactory alternative to traditional manual dermatoscopy, but only if the investigator zooms the object on the screen when assessing the lesion.