DIGITAL PHOTOGRAPHY AND IMAGE PROCESSING IN DERMATOLOGY

ESSAY

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BY

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INTRODUCTION

Photography was used by doctors since decades as an aid in diagnosis and follow up and to exchange experiences. In the past, color photography was an important tool in the daily practice of dermatologists. Then with the digital revolution of the past decade, digital photography promises quicker acquisition and handling of clinical images. It removed many of associated barriers, and it has never been easier or more affordable to take images and use them in a multitude of ways for learning, judging surgical outcomes, teaching and marketing ***(Strauss and Goodfeild, 2003; Niamtu, 2004).***

Digital photography offers advantages in ease of archiving and storage, savings in time and space, extremely quick retrieval and very easy comparison of images. Digital photography is very much the way of the future in dermatological clinical imaging. Digital image, through its ability to be transported via the internet, can be shared by all interested parties ***(Siegel, 2002; Levy et al, 2003)***

A good example of the importance of digital imaging in dermatology nowadays is the detection of early malignant melanoma, with application in following patients with the dysplastic nevus syndrome. Other current uses of digital imaging in image archiving, clinical studies such as hair growth studies and telediagnosis are rapidly growing***(Stoecker et al, 1992; Ratner et al 1999).***

New imaging techniques will empower dermatologists to explore the entirety of a lesion clinically, histologically and histochemically in a single analysis setting giving a greater credence to the role of the specialists in the treatment of cutaneous diseases ***(Abramovits and Stevenson, 2003)***

The technology behind these captured images is progressing rapidly with a resultant increase in image size and resolution. For all practical purposes in clinical dermatology, the technology with regard to resolution has already gone beyond the current needs of the clinician. Manipulating these images with lighting, filters and other processing techniques may encourage diagnostic advances (e.g., distinguishing between benign and malignant surface lesions) ***(Bittorf et al, 1997; Siegel, 2002; Smith, 2002)***

Many features must be taken into consideration in order to chose suitable camera i.e. Size, shape, LCD display, lens, storage and resolution. Dermatologists must know that in clinical imaging no place for trick photography so they must control lightening, shadow, distance and background in order to take standard and consistent image ***(Ratner et al 1999; Niamtu, 2004).***

Some drawbacks, however, continue to exist, including cost of the hardware and software, continuously evolving technology, power consumption and battery usage, lower image resolution compared with 35-mm photography, and the need to have backup image files. With decreasing costs, improving resolutions, and enhanced capabilities, digital cameras will overcome these limitations rapidly ***(Smith, 2002).***

A dermatologist must be aware of the new technologies and how to get use of them in the field of dermatology.

AIM OF THE WORK

The aim of this work is to:

- Highlight all relative points of hardware and software in the field of digital photography.
- Discuss the applications of digital photography in dermatology.
- Define rules to gain standard images that can be reliable in the field of medical practice.
- Provide a baseline reference for future studies.