2024

Dermoscopy for Melanoma Diagnosis in Primary Care

Emily Martyny

Dermoscopy for Melanoma Diagnosis in Primary Care

By: Emily Martyny, PA-S

Abstract

Purpose / Objective: Melanoma cases are rising in the United States placing increased importance on early detection. Dermoscopy can be implemented on the frontlines in the primary care setting to help increase diagnosis of suspicious lesions compared with solely visual inspection.
Methods: Articles were collected from a variety of databases with terms including: "dermoscopy," "primary care," "melanoma," and "visual inspection."
Results: Jones et al.[1] find that with training, dermoscopy in the primary care setting can increase the diagnostic accuracy for melanoma with a reduction in unnecessary excisions and referrals. De Bedout et al.[2] conclude that specificity and sensitivity increased with the use of a dermatoscope for identification of a lesion as benign or malignant and for evaluation of a specific diagnosis. Harkemanne et al.[3] confirm that short term dermoscopy training is non-inferior to long term dermoscopy training in triaging of skin cancer.
Conclusions: Findings suggest that dermoscopy, with training, can improve early detection of melanoma in primary care with reduced referrals and biopsies. As a PA working in primary care, implementing the tool in practice can reduce the time to detection for deadly skin lesions and minimize healthcare burden.

Introduction

- Skin is the largest and most outward facing organ of the body.
- Melanoma is the third most common, yet leading cause of mortality among skin cancers.[4,5]
- Melanoma cases are on the rise among all races and genders in the United States.[4,5]
- Primary care providers (PCPs) hold the burden of early detection due to the nature of being the first providers to assess suspicious skin lesions, especially in areas of limited access to healthcare.
- PCPs often evaluate skin lesions with solely visual inspection.
- Dermoscopy is a tool used by dermatologists to magnify and illuminate cutaneous features not seen to the naked eye in order to distinguish benign from malignant structures.[6]
- Dermoscopy has proven invaluable in identifying patterns specific to melanoma in the setting of dermatology and could be used by PCPs to evaluate lesions early.
- This paper aims to shed light on the importance of implementing dermoscopy in the primary care setting for early detection of melanoma compared with solely visual inspection.

Topic of Interest

- Dr. Pierre Borel's first creation of the microscope.[7]
- Dermoscopy was first used by Dr. Ronald Mackie in 1971 for the diagnosis of melanoma[7]; now commonly used by dermatologists.
- This topic was chosen due to the alarming rising rates of melanoma and the need for early diagnosis and treatment by PCPs that may be aided with dermoscopy.
- PCPs hold great deal of responsibility in initial evaluation of atypical lesions, especially melanomas due to their invasive, aggressive nature and rising incidence.[4,5,8]
- The concerning nature of melanoma and the increased reliance on PCPs for evaluation of suspicious lesions increases the need for accurate analysis.
- PCPs typically evaluate with solely visual inspection, putting them at a greater disadvantage compared to their dermatology counterparts.[8]
- Dermoscopy is a tool that should be used by all to efficiently and accurately diagnosis skin cancers such as melanoma.

Methods

- *Clinical question*: "For patients presenting to primary care with atypical skin lesions, does the use of dermoscopy help to increase rates of detection compared with solely visual inspection?"
- *Population*: primary care patients with atypical lesions; *Intervention*: use of dermoscopy; *Comparison*: visual inspection; *Outcome*: the rates of detection of melanoma.
- Specific search words used in the Johnson & Wales University library database website included: "dermoscopy," "primary care," "melanoma," and "visual inspection."
- Search criteria included articles within the past five years (2019-present) and verification of peer-reviewed, credible journals. Some examples of such journals include *Dermatology Practical & Conceptual, BMJ Open,* and *Journal of General Internal Medicine*.

Discussion

Article 1: Dermoscopy for melanoma detection and triage in primary care: a systematic review[1]

- Systematic review of three RCTs, two sequential intervention trials (SIT), nine diagnostic accuracy studies, two cohort studies, two case series, one case–control study and four PCP surveys looking at PCPs who used dermoscopy for identification of melanoma.
- Aim of the study is to understand the use of dermoscopy in primary care to triage suspicious skin lesions and the challenges for implementation in the midst of rising rates of melanoma and need for early intervention.
- Findings show that dermoscopy, with proper training, increases diagnostic accuracy, improves the number needed to excise and enhances the sensitivity and specificity compared to visual inspection for melanoma in the primary care setting.
- Authors also find that barriers to implementation include training, cost of equipment, and time to perform, yet PCPs are highly receptive to dermoscopy.
- Limitations: lack of training protocol, of heterogeneity of populations limiting the ability to conduct a meta-analysis, limitation of generalizability due to the study being conducted in affluent countries such as US, Europe, and Australia.

Article 2: Skin cancer and dermoscopy training for primary care physicians: a pilot study[2]

- Prospective observational study created to better understand the effects of dermoscopy and training on diagnostic accuracy on skin cancer diagnosis in the primary care setting.
- Aim of the study is to evaluate the effects of dermoscopy and training on dermatoscope use in order to overcome a major barrier to proper implementation.
- Two day active learning dermoscopy training conducted by dermatologists for volunteer PCPs in a rural region of Colombia, an area chosen due to its rural nature, low access to healthcare, and population ethnicity of mestizo and white who are more prone to developing skin cancer.
- Results show an an increase in sensitivity and specificity for diagnosis of benign versus malignant lesions and accuracy of specific diagnosis after training, and PCPs increased level of self-reported confidence by 28%.
- Findings comparing clinical inspection versus dermoscopic evaluation showed increased sensitivity and specificity for both differentiation of benign versus malignant and accurate diagnosis of lesions with dermoscopy (See figures 1 & 2).
- Limitations: small sample size of 19 due to the nature of a pilot study, population limited to one small area with individuals of similar ethnic backgrounds decreasing the generalizability of the study, and no suggestions made for implementation of the training.

Article 3: Evaluation of primary care physicians' competence in selective skin tumour triage after short versus long dermoscopy training: a randomized non-inferiority trial[3]

- Randomized control trial of 216 PCPs conducted to assess if a short dermoscopy training is non-inferior to long dermoscopy training and the efficacy of refresher courses in the maintenance of skills for triage of skin cancer by PCPs.
- Aim of the article is to analyze if a short dermoscopy e-learning course (4 hours) compared to long dermoscopy course (12 hours) is equally efficacious in the training of PCPs in order to reduce the burden of time dedicated to training, as well as to assess the need for refresher courses.
- Findings revealed that PCPs participating in short training (ST) had an equivocal increase in diagnostic accuracy or total overall score of correct diagnoses of skin cancer immediately after the course compared to long training (LT) .
- Results show that the change in percentage of correct answers, including diagnosis of melanoma, was not statistically significant between the ST and LT, in totality indicating that immediately ST is non-inferior to LT with a -28% non-inferiority margin – this was similarly seen at immediately after training and five months later.
- PCPs who participated in all four refresher training sessions (RTS) had an increase in overall scores and correct answers compared to those who completed less than two RTS.
- Limitations: selection bias based on volunteerism, five participants previously completing dermoscopy training, inclusion of most common skin cancers, neglection of dermoscopy training images on people of color, and the exam taken on an online, open book format.

Figures

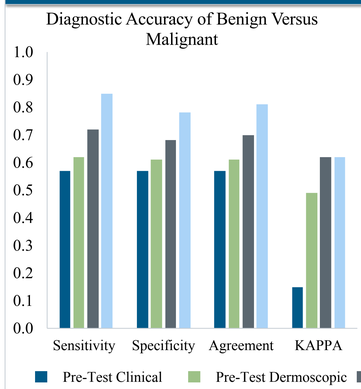

Figure 1. Figure adapted from De Bedout et al.[2] showing the diagnostic accuracy of benign vs malignant. An increase in sensitivity and specificity in differentiating skin lesions as benign vs malignant was observed after the two-day skin cancer and dermoscopy training.

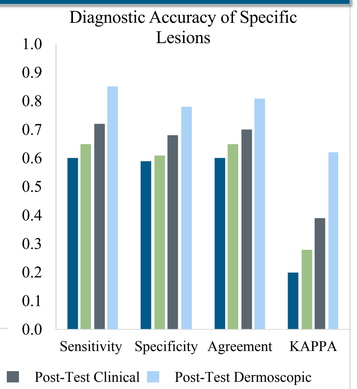

Figure 2. Figure adapted from De Bedout et al.[2] showing the diagnostic accuracy of specific lesions. An increase in sensitivity and specificity in diagnosing specific skin lesions was observed after the two-day skin cancer and dermoscopy training.

Dermilte II HR 3Gen – dermatoscope – DL200 HR. Serfinity. https://sertinitymedical.com/products/kcm23-dermlite-ii-pro-hr-3gen-dermatoscope-3gendl200hr-640963?variant=39940366434379&gad_source=1&gclid=CjwKCAiA1-6sBhAoEiwArqlGPrdHJ_WTCZ04IVm5hjl0nB42in7zuJcp_BdFpG1HdJMaLZRCS8BfrxoCuqIQAvD_BwE. Accessed January 10, 2024.

Conclusions

- Overall, the articles conclude that dermoscopy can help PCPs to detect melanoma accurately and efficiently compared to visual inspection.
- Dermoscopy is found to increase diagnostic accuracy of melanoma in the primary care setting, ultimately leading to early detection and a reduction in morbidity and mortality.
- This is particularly vital in areas of low income or limited access to resources where patients may only be evaluated by a PCP.
- Training is necessary for proper dermatoscope use, but is a barrier to implementation – however, even minimal, online training can be sufficient before PCP use.
- Understanding how important dermoscopy is in evaluation and reduction in disease burden of melanoma, a physician assistant (PA) in primary care or any field analyzing the skin should consider dermoscopy – as long as adequate training is implemented with an acceptable level of confidence in usage.

References

1. Jones OT, Jurascheck LC, van Melle MA, et al. Dermoscopy for melanoma detection and triage in primary care: a systematic review. *BMJ Open*. 2019;9(8):027529. Published August 20, 2019. Accessed November 5, 2023.
2. De Bedout V, Williams N, Muñoz A, et al. Skin cancer and dermoscopy training for primary care physicians: a pilot study. *Dermatology practical & conceptual.* 2021;11(1) e2021145. Published January 29, 2021. Accessed November 5, 2023.
3. Harkemanne E, Legrand C, Sawadogo K, et al. Evaluation of primary care physicians' competence in selective skin tumour triage after short versus long dermoscopy training: a randomized non-inferiority trial. *Journal of the European academcy of dermatology and venereology*. 2023;8(37):1464-1465.
4. Five other sources referenced.