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Melanoma

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Introduction

Topic

- The chosen topic for the poster project was malignant melanoma.
- The incidence of malignant melanoma has continued to increase over the years and it has become one of the top five most common cancers in the United States (Kauffmann & Chen, 2014).
- The incidence of melanoma has also increased worldwide (Azoury & Lange, 2014).
- 5th and 7th most common cancer in men and women respectively (Azoury & Lange 2014).

Explanation for Topic Choice

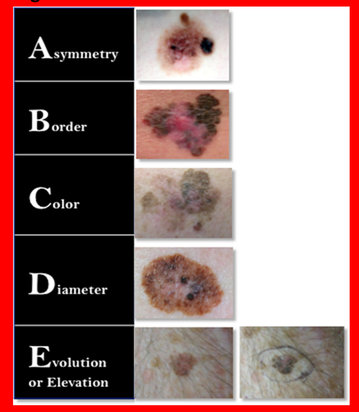
- The appeal in the topic derived from diagnosis of multiple family members, leading to an interest in enhancing personal knowledge.
- Goal to further educate others about malignant melanoma, its origin, risk factors, prevention and treatment.

Signs & Symptoms

- A new abnormal looking growth or an existing mole that undergoes changes should be evaluated
  - ➢ Early signs of melanoma are described by the mnemonic "ABCDE" (Kauffman & Chen, 2014, p. 964 & American Cancer Society, 2018)
  - ○ A = asymmetry and refers to one half of the mole or growth not matching the other half.
  - ○ B = border and refers to irregular edges.
  - ○ C = color and refers to the color being inconsistent and may include different shades or patches
  - ○ D = Diameter and refers to the mole being greater than 6mm across (although melanomas can be smaller than 6mm)
  - ○ E = Evolution or Elevation referring to the mole changing in size, shape or color or becoming elevated.

- According to the American Cancer Society other signs of potential melanoma are
  - ➢ "A sore that does not heal"
  - ➢ "Spread of pigment from the boarder of a spot into surrounding skin"
  - ➢ "Redness or new swelling beyond the border of the mole"
  - ➢ "Change in sensation, such as itchiness, tenderness or pain"
  - ➢ "Change in the surface of a mole - scaliness, oozing, bleeding, or the appearance of a lump or bump"

Figure 1. Mnemonic "ABCDE"



(Kauffmann & Chen, 2014, p. 964)

Risk factors for melanoma

(Azoury & Lange, 2014, p.949)

- Acquired & Environmental
  - ➢ Ultraviolet light
  - ➢ Cancer history
    - ○ Significantly increases risk regardless of the type of skin cancer
  - ➢ Immunosuppression
  - ➢ Socioeconomic Status
  - ➢ Obesity
  - ➢ Occupation/Exposure
- Demographics and Phenotypes
  - ➢ Race - Caucasian
  - ➢ Male
  - ➢ Age > 65
  - ➢ Light hair, light eyes, fair skin
  - ➢ Multiple atypical Nevi
- Familial, Genetics & Epigenetics
  - ➢ microRNA
  - ➢ High, low risk Allele
  - ➢ MITF, other mutations

Pathophysiology

Underlying

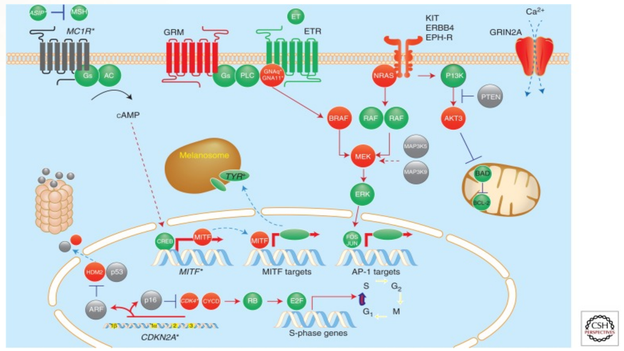
- Melanin is cells of the skin from which pigment is generated and it is synthesized by melanocytes (McCance & Huether, 2019, p.85.
- Melanoma is an aggressive malignancy borne of melanocytes (Hawryluk & Tsao, 2014, p.2).
- The pathophysiology sequence leading to melanoma is not well defined and the molecular trigger for transformation to melanoma is unknown. However, certain genes and signaling pathways have been discovered to have a role in the pathophysiology of melanoma (Hawryluk and Tsao, 2014, p.2).

Significance

- Melanoma is a "molecularly heterogeneous disease" and research has identified many genetic alterations. Identifying genetic mutations can provide a positive clinical impact on patient care (Hawryluk and Tsao, 2014, p.1).

- Germline melanoma
  - ➢ CDKN2A (Hawryluk & Tsao, 2014)
  - ○ Cyclin-dependent kinase inhibitor 2A encode tumor suppressor proteins which function in cell cycle arrest.
  - ○ High penetrance gene
  - ○ 70% increased risk of melanoma for those who carry the mutation
  - ○ Most common mutation in hereditary melanoma. "Familial melanoma in the presence of multiple atypical nevi should raise suspicion for a germline CDKN2A mutation (Soura et al. 2015, p. 395)
  - ➢ BRAF (Hawryluk & Tsao, 2014)
  - ○ Associated with intense intermittent UV radiation exposure
  - ○ Most often found in the younger population
  - ○ More than 60% of cutaneous melanoma have BRAF mutation
  - ○ In initial studies tumor regression was achieved with selective inhibition of BRAF.

Figure 2.



"A molecular map of melanoma. Heritable loci with risk alleles or single-nucleotide polymorphisms are shown in italics with asterisks (e.g., *CDKN2A). Red and gray colors indicate somatic alterations that result in gain of function (i.e., oncogenes such as BRAF) or loss of function (i.e., tumor-suppressor genes such as PTEN), respectively. (Figure based on modified data from Tsao et al. 2012)" (Hawryluk & Tsao, 2014, p. 4)**

Implications for Nursing Care

- The nurse practitioner (NP) has the ability to help patients prevent, detect, and treat malignant melanoma.
- Educating patients on prevention strategies can help decrease their risk of melanoma, such as
  - ➢ Wearing sunscreen and protective clothing, limiting exposure time in the sun, avoiding tanning beds, and checking and monitoring moles and growths on the skin.
- Following the mnemonic "ABCDE" can help the patient as well as the provider spot a potential melanoma.
- Should a suspicious lesion be noted it should be biopsied and if found to be melanoma, staged appropriately according to the depth of the tumor (Breslow thickness test) and the mitotic rate (Mrazek & Chao, 2014)
- It is also important to obtain a family history of melanoma to determine a possible genetic link.

Conclusion

With the incidence of melanoma continuing to increase it is important to obtain a complete history and physical. Family and self history is of great importance. Any suspicious lesions should be biopsied and staged in order to allow the patient to have the best optimal outcomes.

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