Pediatric Melanoma: kids are not small adults

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DISCLOSURE

Relevant Financial Relationships
None

Off-Label Usage
IFN gamma, Dacarbazine, Paclitaxel, Carboplatin, Cisplatin, Vinblastine, IL-2, Ipilimumab, Vermurafenib

Other
I may have missed your favorite article
I may have missed your article
Learning Objectives

- Review the basic tenants of melanoma
- Explore the current literature regarding the incidence, demographics, presentation, and outcomes of pediatric melanoma
- Appreciate the differences between adult and pediatric melanoma patients
- Discuss implications and management options for children with melanoma
Brief overview of melanoma
Adult melanoma facts
Review the literature on pediatric melanoma
  – Demographics
  – Incidence
  – Clinical presentation
  – Management
  – Prognosis
Future direction for care
Melanoma

- aka “Malignant Melanoma”

- Malignant transformation of melanocytes

- Predominantly skin
  - also eyes, intestine

- Rarest, but most dangerous, form of skin cancer
Melanoma in Adults

- U.S. Data:
  - 1 in 50 adults lifetime incidence (and rising)
  - 74,000 cases per year
  - 10,000 deaths (one every hour)
  - 85-90% due to UV exposure
  - Mostly Caucasians
  - More females until age 50, then more males
Melanoma in Adults

- 4 types:
  - Superficial spreading
  - Lentigo maligna
  - Nodular
  - Acral lentiginous

- Classic presentation: “ABCDE”
  - Asymmetry
  - Borders
  - Color
  - Diameter
  - Elevation/Evolution
Pediatric Melanoma
Demographics

- All ages, but bimodal
  - Infants, toddlers
  - 14-18 year olds

- Mostly Caucasians (84-93%)
  - Skin of color: birth to 9 yrs
    - Higher than adult rates

- More girls than boys
  - All ages
  - Accelerates at adolescence
Demographics
Neier et al. J Peds Hematol Oncol 2012

- Risk Factors:
  - Large congenital nevus
  - Acquired dysplastic nevi
  - Retinoblastoma
  - Werner syndrome
  - Xeroderma Pigmentosum
  - Li-Fraumeni syndrome
  - Lynch Syndrome Type II
  - Familial Melanoma
  - Immunosuppression
  - INDOOR TANNING
Demographics: Infantile Melanoma


- “Triple Threat”
  - 1. Delayed diagnosis: thicker
  - 2. Histologic dilemma
  - 3. No data on SLN, mets

- Maternal metastasis
  - 8% of all cancers in pregnancy
  - 22% risk if placenta affected

- Congenital nevus
  - 80% of pediatrics MM are de novo
  - Infantile MM from congenital nevi, “100%”
Incidence: Increasing!


- 1-2% of all melanomas
- 300-420 cases/year
- Increasing at 2-3% per year
- 46% rise per year of age
- Skin of color decreases sharply at age 5, “gone” by age 10
Incidence: Increasing!


**WHY?:**

- Increased awareness
- Overly conservative dx
- Better data registries
- Increasing maternal age
- More environmental UV
- More environmental toxins
- TANNING BEDS
Incidence: Not Increasing?


- 40 yrs of health records, Rochester MN

- 7 cases
  - 4 girls, 3 boys
  - Avg age 14 yrs

- No rate of increase
  - 0.62 per 100,000 girls
  - 0.45 per 100,000 boys

- One had metastasis (SNL)

- 5 of 7 within pre-existing nevus
Clinical Presentation
Cordoro et al. JAAD 2013

- Often confused for warts, molluscum, pyogenic granulomas

- Not the classic ABCDE
  - 40-60% do NOT have these signs
  - Esp. young children (<10 yr)

- Propose new ABCDE (in addition)
  - Amelanotic
  - Bleeding
  - Bump
  - Color uniformity
  - De novo
  - any Diameter
Diagnosis


- Full skin exam
- Excision or punch biopsy
  - 1-3mm normal skin
  - Include subdermal fat
  - No shaves or partial biopsies
- Document risk factors
- Dermpath assessment with pigmented lesion experience
Management


- 80-85% local disease
- 10-15% lymph node spread
- 1-3% distal metastasis

- Staging and excision per National Comprehensive Cancer Network /American Joint Committee on Cancer
  - 5mm for in situ
  - 1-2 cm for 1-2 mm MM
  - 2cm for >2mm MM
Management

- SNL for Stage IB to IV
- SNL for “complex” IA
  - Ulceration
  - High mitotic rate
- LND if SNL positive
  - Monitor for morbidity
  - Higher positivity than adults
  - Fewer recurrences than adults
- CT or PET-CT scan for II-IV
- Chemotherapy for metastases
  - IFN gamma, Dacarbazine, Paclitaxel, Carboplatin, Cisplatin, Vinblastine, IL-2, Ipilimumab, Vermurafenib
Prognosis

- Patients 0-10 years:
  - More likely male (48%)
  - More likely skin color (22%)
  - More spitzoid (44%)
  - Mostly nodular and thick
  - More vascular invasion (25%)
  - More positive SNL (53%)

- No deaths
Prognosis

- Patients 11-17 years:
  - Mostly females (55%)
  - Mostly Caucasian (96%)
  - SNL positivity low (26%)

- Deaths did occur
- 10 yr survival 89% (better than adults)

- Poor prognosis:
  - Tumor >2mm thick
  - Positive SNL
Mortality


- Lower than adults
- Average 18 deaths/year
- 8-18x higher age 15-18
- 57% male
- 93% Caucasian
- Steady decline 1960s to present

Lewis. Dermatologic Surgery 2008

Lewis. Dermatologic Surgery 2008
Summary

- Pediatric melanoma occurs
- Melanoma in children is very different from adults
- Detection is key
- Clinical presentation is unique
- Most patients do well, some do not
- We still have much to learn
Thank You