Graduate level medical students’ ability to detect and address incidental melanoma in a simulation study

an observational evaluation study

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Nace Trendafilov (master candidate)

Supervisor: PD Dr. med. Helmut Beltraminelli
Department of Dermatology, University Hospital of Bern

Co-Advisors: Dr. med. Daniel Bauer, MME & Dr. med. Sandra Wüst
Institute for Medical Education
Some facts

Melanoma
• High-risk population: repetitive UV-exposure, skin type, family history
• Breslow classification = prognosis
• 5 year survival after excision = 98% early stage / 23% metastasized

Switzerland
• Men 28.1/100‘000
• Women 23.9/100‘000
• 2‘704 cases per year (2011-2015)
• 328 deaths per year (2011-2015)

Detection
• 53% self-detected (no self-check = incidental)
• 20% dermatologist
Objective

Evaluating the competence of final-year medical students detecting incidental melanoma during a formative clinical skills evaluation with standardized patients. The results evaluate Bernese medical students’ dermatological skills on a practical and relevant outcome level.
Methods

• Formative clinical skills evaluation
• N=60 final year students (quarter semester cohort)
• 4 different cases
• 13 minutes per case

SP’s case story
• Chief complaint: bowel obstruction due to unhealthy diet
• Suspicious skin lesion placed on the left flank as secondary (incidental) finding

• instructed always to take off shirt but not actively attract attention to lesion
Suspicious lesion

- 3-dimensional Probono-based prosthetic (transfer tattoo)
- Placed in left axillary line above 9th rib
- Irregular shape, fluent borders, inhomogeneous colours, 13 mm diameter
Checklist

**Question content**

- Asked about the lesion: yes / no / other: 
- Onset of the lesion: yes / no / other: 
- Changes in the lesion: colour and size: yes / no / other: 
- Characteristics of the lesion: itching and bleeding: yes / no / other: 
- Personal history of sunburns and sunscreen use: yes / no / other: 
- Exacerbating factors: yes / no / other: 
- Alleviating factors: yes / no / other: 
- Pertinent review of systems: yes / no / other: 

**Action During Examination**

- Examined skin: yes / no / other: 
- Touched lesion: yes / no / other: 
- Measured lesion: yes / no / other: 
- Examined lymph nodes: yes / no / other: 

**Documentation of Patient Encounter**

- Assess an atypical skin lesion: yes / no / other: 
- Refer an atypical skin lesion for biopsy: yes / no / other: 
- Educate about skin cancer prevention: yes / no / other: 

Other observations:
Results

• 60 students invited to participate in study
• (3 students excluded; no consent)
• (1 student excluded; previous student picked at the moulage, destroying it)
• Age median 25 years
• 54% participants female

Checklist

• 2 / 56 students (4%) addressed the lesion and
  • asked about the lesion
  • onset of the lesion
  • touched the lesion

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Documentation of Patient Encounter
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Other observations:
Follow-up Questionnaire

- 38 / 56 students (68%) completed the questionnaire

<table>
<thead>
<tr>
<th>Question</th>
<th>Y / real</th>
<th>N / artificial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Regarding the case of Mr. Mikulic’ abdominal pain, were you quite able to assume the physician’s role?</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td>2. Do you think you received adequate education in dermatology during your medical program?</td>
<td>76%</td>
<td>24%</td>
</tr>
<tr>
<td>3. Did you see the abnormal skin finding on Mr. Mikulic’ left flank?</td>
<td>11%</td>
<td>81%</td>
</tr>
<tr>
<td>4. Did you consider this skin condition to be real (part of the actor) or artificial (part of the simulation)?</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>5. Did you address this skin finding during the 13-minute consultation with Mr. Mikulic?</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Question 3 included the picture of the SP’s trunk with the melanoma as visual cue to aid memory.
Discussion

Comparing results to similar studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Detection rate (not diagnosed)</th>
<th>Melanoma’s location</th>
<th>Chief complaint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current study</td>
<td>4%</td>
<td>Abdomen</td>
<td>Bowel obstruction</td>
</tr>
<tr>
<td>Garg et al.</td>
<td>54.2%</td>
<td>Back</td>
<td>Pulmonary complaint</td>
</tr>
<tr>
<td>Hernandez et al.</td>
<td>22.6%</td>
<td>Second digit</td>
<td>Carpal syndrom</td>
</tr>
<tr>
<td>Zorn et al.</td>
<td>42%</td>
<td>Dorsal hand</td>
<td>Carpal syndrom</td>
</tr>
</tbody>
</table>

- Different locations
- 2 minutes longer (Garg et al., Hernandez et al.)
- 7 minutes longer (Zorn et al.)
Discussion

• Attention bias (exam setting, though formative)
• Irritation about simulation (skin lesion real or part of simulation)
• No conclusion regarding participants competence
• Possible implications for curriculum
  • More holistic approach to patients
  • Professionalism

• Adaption of study necessary to answer original research question