Surgical oncology in Africa (Nigeria)

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Assoc. Attending Memorial Sloan Kettering Cancer Center

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Obafemi Awolowo University Teaching Hospital
Ile-Ife, Nigeria
• Surgeons are at the center of oncology care in sub-Saharan Africa
  – Radiation not available in most countries, medical oncologists don’t exist for solid tumors in most countries
  – Biopsy
  – Resect
  – Prescribe chemotherapy
  – Palliate

• Yet often not at the policy table....
Ile-Ife Nigeria
Late stage patients
African Research Group for Oncology (ARGO)

1. Who gets CRC?
   - NCI Pilot grant:
     • prospective database
     • tissue bank

2. What are outcomes of pts with CRC?

3. Can pts with CRC be identified at early stages?

1. Post graduate courses
2. Masters in Clinical Research
3. Soudavar Fellowships
4. ARGO Pilot Grants
5. NIH grants
6. Pathology

1. Developing ARGO Guidelines (CRC, breast)
2. CRC therapeutic trial
3. Early discharge after breast surgery
4. Improving access to breast cancer screening

Fischer S, ..., Kingham TP; Annals of Surgical Oncology 2016
Why colorectal cancer?

- 3rd most common cancer globally

- 70% increase in CRC incidence and deaths by 2030
Colorectal cancer in Nigeria
Colorectal cancer in Nigeria

- Who gets CRC in Nigeria?

- Screening/early diagnosis

- Biology of Nigerian CRC
Who gets CRC in West Africa?  
Prospective data collection

- A multicenter study involving 5 tertiary health facilities in Southwest of Nigeria and MSK.
  - OAUTHC Ile-Ife
  - UITH Ilorin
  - LAUTECH Osogbo
  - FMC Owo
  - University of Ibadan
    - Each hospital has a team comprised of Surgeons, Pathologists, Radiologists

- Consortium created in Oct 2013
### Who gets CRC in West Africa?

**Prospective data collection**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>83 (57%)</td>
</tr>
<tr>
<td>Blood in stool</td>
<td>78 (67%)</td>
</tr>
<tr>
<td>&gt;6 months bleeding</td>
<td>23%</td>
</tr>
<tr>
<td>Weight loss</td>
<td>88%</td>
</tr>
<tr>
<td>Rectal primary</td>
<td>53%</td>
</tr>
<tr>
<td>Metastatic disease</td>
<td>64%</td>
</tr>
</tbody>
</table>

Kingham, ARGO, unpublished data
Nigerian patients present at young age

• Median ages
  – Nigeria: 53 years
  – USA: 68 years

• % younger than 50 years:
  – Nigeria: 41%
  – USA: 17%
Patients present late in Nigeria

<table>
<thead>
<tr>
<th>Presenting stage</th>
<th>% Nigeria (n=145)</th>
<th>% USA (SEER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0%</td>
<td>39%</td>
</tr>
<tr>
<td>II</td>
<td>9%</td>
<td>36%</td>
</tr>
<tr>
<td>III</td>
<td>27%</td>
<td>-</td>
</tr>
<tr>
<td>IV</td>
<td>64%</td>
<td>20%</td>
</tr>
</tbody>
</table>
Survival with CRC in Nigeria is poor

- 6 month survival was 63% (95% CI 53.6-72.1)
- 12 month survival was 48% (95% CI 38.9-60.1)
Metastatic pattern is different

<table>
<thead>
<tr>
<th>Site</th>
<th>Nigeria</th>
<th>MSKCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peritoneal</td>
<td>63%</td>
<td>5%</td>
</tr>
<tr>
<td>Liver</td>
<td>60%</td>
<td>48%</td>
</tr>
</tbody>
</table>
Colorectal cancer in Nigeria

- Who gets CRC in Nigeria?
- Screening/early diagnosis
- Biology of Nigerian CRC
Barriers to screening/dx?

- Home stool studies not accepted
- Benign rectal bleeding
- Inconvenient
- Bowel preparation
- Discomfort
- Lack of information
- Lack of access
- Cost
Optimal CRC screening/surveillance test

- CRC prevention
- Early stage dx
- Reduce resources needed to treat CRC patients
- For LMIC:
  - Asymptomatic screening unrealistic
    - Can’t manage high false positive rates
  - Use high-risk patients (rectal bleeding, hx of CRC, or family hx)
  - Low cost
  - POC
  - Easy to use
Prospective high-risk surveillance study

• Cross sectional study involving consecutive patients with rectal bleeding who underwent colonoscopy

• Eligibility criteria
  – 45 year old subjects with rectal bleeding lasting >1 week
  – Exclusion criteria
    • inflammatory bowel disease
    • colorectal polyps, colorectal adenoma or CRC
    • family history of polyposis
    • contraindication to colonoscopy
Colorectal cancer is common in 362 high-risk patients

<table>
<thead>
<tr>
<th>Source of bleeding</th>
<th>Overall (%)</th>
<th>Training (%)</th>
<th>Validation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhoid</td>
<td>120 (33%)</td>
<td>89 (41%)</td>
<td>31 (21.4%)</td>
</tr>
<tr>
<td>Diverticulosis</td>
<td>81 (22.4%)</td>
<td>54 (24.9%)</td>
<td>27 (18.6%)</td>
</tr>
<tr>
<td>CRC</td>
<td>65 (18%)</td>
<td>37 (17%)</td>
<td>28 (19%)</td>
</tr>
<tr>
<td>Polyps</td>
<td>26 (7%)</td>
<td>15 (7%)</td>
<td>11 (8%)</td>
</tr>
</tbody>
</table>
# Cancer stage at dx in high-risk patients

<table>
<thead>
<tr>
<th>CRC stage</th>
<th>Overall</th>
<th>Training</th>
<th>Validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>19 (29%)</td>
<td>16 (42%)</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>3</td>
<td>30 (46%)</td>
<td>11 (29%)</td>
<td>19 (68%)</td>
</tr>
<tr>
<td>4</td>
<td>17 (26%)</td>
<td>11 (29%)</td>
<td>6 (21%)</td>
</tr>
</tbody>
</table>

## Presenting stage

<table>
<thead>
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<th>Presenting stage</th>
<th>% Nigeria (n=145)</th>
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<tr>
<td>I</td>
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</tr>
<tr>
<td>III</td>
<td>27%</td>
</tr>
<tr>
<td>IV</td>
<td>64%</td>
</tr>
</tbody>
</table>

Currently:
Knowledge regarding rectal bleeding is mixed

- 82 pts asked about beliefs on rectal bleeding:
  - Hereditary: 37%
  - Cancer: 39%
  - Increased sugar intake: 78%
  - Hemorrhoids: 90%

Kingham, unpublished data
Colorectal cancer in Nigeria

- Who gets CRC in Nigeria?
- Screening/early diagnosis
- Biology of Nigerian CRC
Is the biology different?

Methods: purified DNA and a 5-microsatellite marker genotyping platform

<table>
<thead>
<tr>
<th></th>
<th>MSI-L/MSS</th>
<th>MSI-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Median age (yrs)</td>
<td>55</td>
<td>50.5</td>
</tr>
<tr>
<td>Location primary tumor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Right side</td>
<td>2 (9%)</td>
<td>6 (60%)</td>
</tr>
<tr>
<td>• Left side</td>
<td>21 (91%)</td>
<td>4 (40%)</td>
</tr>
</tbody>
</table>
Breast cancer in Nigeria

- Most common female malignancy in Nigeria
- Leading cause of cancer death in Nigeria
- Incidence, though less than in Western countries, found to be rising
  - Incidence is 52.1/100,000

Jedy-Agba, Cancer Epidemiol. 2012
Akinde, JCO, 2015
Nigerian patients present with advanced disease

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II &amp; III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA$^1$</td>
<td>61%</td>
<td>31%</td>
<td>5%</td>
</tr>
<tr>
<td>Brazil$^1$</td>
<td>20%</td>
<td>75%</td>
<td>5%</td>
</tr>
<tr>
<td>Nigeria$^2$</td>
<td>5%</td>
<td>55%</td>
<td>45%</td>
</tr>
</tbody>
</table>

$^1$Brittany LL. The Lancet Oncology, March 2013
$^2$Adesunkanmi ARK et al. The Breast 2000
What are barriers to breast cancer screening?

– Cross-sectional survey

– Multistage sampling

– Interviewer administered questionnaire

– 2308 participants
Knowledge and experience about breast cancer

Olasehinde, Kingham, unpublished data
Clinical breast examination

<table>
<thead>
<tr>
<th>Ever had a breast examination?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16%</td>
</tr>
<tr>
<td>No</td>
<td>84%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When last did you have a Clinical breast exam?</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 months ago</td>
</tr>
<tr>
<td>6 months-1 year ago</td>
</tr>
<tr>
<td>1-2 years ago</td>
</tr>
<tr>
<td>&gt;2 years ago</td>
</tr>
<tr>
<td>Never had a CBE</td>
</tr>
</tbody>
</table>
Surgical oncology in Nigeria

• Prospective data collection/biobanking/surgical clinical trials can answer important questions
• These questions can be answered while improving outcomes and capacity
• Surgeons are at the center of oncology care
  – Biopsy, resect, prescribe chemotherapy, palliate
• Additional clinical and research opportunities can enhance surgical oncology capacity
MSK Global Cancer Disparities Team

- T. Peter Kingham, MD (Director, Global Cancer Disparity Programs)
- Murray F. Brennan, MD (Vice-President for International Programs)
- Andrea Pusic, MD (Plastic surgery)
- Martin Weiser, MD (Colorectal surgeon)
- Evi Vakiani, MD (Pathologist)
- Josh Smith, MD (Colorectal surgeon)
- Vicky Mango, MD (Radiology)
- Hanae Tokita, MD (Anesthesiology)
- Peter Ntiamoah, MS (Head Pathology Technologist)
- Brooke Sylvester, PhD (Colorectal cancer cell biologist)
- Paula Gonzalez (Research coordinator)
- Jeremy Constable (Research assistant)
Thank you