Variable Incidence of Stomach Cancer in Morocco

Learning Opportunities & Challenges in International Cancer Epidemiology

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Conflict of Interest Disclosure

I, or an immediate family member, including spouse or partner, have NO financial relationship(s) relevant to the content of this educational activity.
Learning Objectives

- Understand the unique challenges present during research in developing countries
- Grasp the training necessary to prepare students for international research
- Discern the paths students may take after conducting research in an international setting.

My Background

B.S. Biotechnology
MPH, concentration in Health Promotion

Work Experience:
- Laboratory research 2007-2014
  - Microbiology, Animal Physiology, Surgery, Cancer

School-Related Experience
- CEESP
Morocco
Cancer Epidemiology Education in Special Populations

Cancer in Morocco

2 Cancer Registries
– Rabat (hospital-based, 2005)
– Casablanca (population-based, 2005-2007)

In both cities the most common cancers are:
– Men: Lung & Prostate
– Women: Breast & Cervix
Healthcare in Morocco

Universal Coverage for Cancer & Chronic Diseases
Flexibility in seeking medical care
- Low & middle SES to public hospitals
- High SES to private clinics
Flexibility in choosing place of histopathological diagnosis

Stomach Cancer in Morocco

Clinical impressions from Marrakech suggested a higher frequency of stomach cancer compared to Casablanca

Clinicians suggested differences in diet between the 2 cities as a possible risk factor
Summer Research Objectives

• **Year 1:** Evaluate the incidence of stomach cancer in Marrakech & compare to Casablanca Registry
• **Year 1:** Investigate demographic and clinical characteristics of stomach cancer patients in Marrakech
• **Year 2:** Evaluate presence of gastrointestinal diseases treated or diagnosed at CHU-Mohammad VI in Marrakech

Methods

**Medical Records**
- Center Hospital University-Mohammad VI in Marrakech, Morocco
- Used logbooks and medical records to record collected cases

**Pathology Reports**
- 4 large private pathology laboratories in Marrakech
- Collected pathology reports for patients with confirmed stomach cancer
Methods

Manual Search of Hospital Records n=169
Cases Identified from Hospital Logbook n=141
Cases Abstracted from Medical Records n=327
Cases Abstracted from Pathology Labs’ Records n=447

Cases excluded due to Residence or metastasis from Lymphoma n=49

Total Cases n=725

Data Management & Analysis

1. Marrakech
   a. Removal of duplicate cases from labs and medical records
2. Census
   a. Population data obtained from the 2004 census
      • Population totals by age & gender
      • Percent growth and natural population increase rates used to estimate 2008-2012 population
3. Casablanca
   a. Data was abstracted from registries for 2004-2007
International Collaborators

Casablanca
- Pathology
- Registry Coordinator

Marrakech
- Physicians
- Residents

Stomach Cancer Incidence

Total Incidence comparison in Marrakech (2008-2012) and Casablanca (2004-2007)

<table>
<thead>
<tr>
<th></th>
<th>Marrakech</th>
<th>Casablanca</th>
<th>Rate Ratio (95% CI)</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>7.19</td>
<td>3.91</td>
<td>1.8 (1.6-2.1)</td>
</tr>
<tr>
<td>Female</td>
<td>3.87</td>
<td>2.58</td>
<td>1.5 (1.2-1.8)</td>
</tr>
<tr>
<td>All</td>
<td>5.50</td>
<td>3.23</td>
<td>1.7 (1.5-1.9)</td>
</tr>
</tbody>
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Strengths

- Cooperation and interest in the project by local collaborators
- Receiving records from the largest pathology labs in the city and the largest public hospital in the city
- Cancer registry from Casablanca & cooperation from those who made the registry
- Open Access to all records

Challenges in Morocco

- Spelling of names were not always accurate, making removal of duplicates a challenge
- Some cases identified in the logbook were not found in medical records, and vice versa
- Organization of Records
- Better residence data from medical records than labs
- Identifying the population denominator *(See next slide)*
Learning Opportunities

- Be assertive & confident, but also patient
- Learn about the culture
- Record observations everywhere
- How to manage incomplete data
- Cancer care in other areas of the world
- Working with varying mentalities around research
Future Directions

Investigate variable rates of stomach cancer in other regions of Morocco
Explore the presence of possible risk factors including
  – H. pylori rates
  – Variation in diet
Evaluate further the rates of gastric disease that may increase risk of stomach cancer

My Future Plans

Currently pursuing PhD in Epidemiology
Interests include:
  – Combining current knowledge in biotechnology and public health
  – Cancer & Infectious Disease
  – Working with global and domestic populations
References