Epidemiology of travel-related morbidity in Europe

a EuroTravNet/GeoSentinel multi-centre study

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Objective

- To determine the epidemiology of travel-related diseases in a large set of ill returned European travellers over a significant time period and to compare this to the epidemiology of disease in travellers from other developed countries outside Europe.
Data source

- March 1997-Nov 2007
- Ill travellers returned from a developing country
- European GeoSentinel clinics (EuroTravNet core sites)
- Comparison group: non-European GeoSentinel sites (USA, Canada, Australia and New Zealand)
Classic traveller

A European country-born person, living in Europe

Immigrant traveller

A developing country-born person, living in Europe

Patients whose purpose of travel was the initial immigration travel from their birth country to Europe were excluded.

Expatriate traveller

A Europe-born person living in a developing country
Europeans = 17,228 patients
non-European = 12,663 patients
Demographic and travel data

- Globally, immigrant-travellers sought markedly less pre-travel advice (22% vs 62%) and were more likely to be inpatients (24% vs 5%), compared to other groups.

- Non-Europeans had a lower proportion of inpatient (11% vs 37%) in the “immigrant-travellers” category, compared to Europeans.

- Non-European expatriates were younger (23 y vs 37 y), had a longer duration of travel (304 d vs 164 d) and sought pre-travel advice more often (78% vs 58%), compared to Europeans.

p-value < 0.001
Regions visited
Proportionate morbidity (%)

cases of a specific diagnosis

all cases of ill returned travellers
10 ill returned travellers

4 Gastro-intestinal diseases
2 Febrile systemic illnesses
2 Dermatologic
1 Respiratory diseases
## Reason for travelling

<table>
<thead>
<tr>
<th>Reason</th>
<th>Acute Diarrhea</th>
<th><em>P. falciparum</em> Malaria</th>
<th>Dermatologic</th>
<th>GU STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourist</td>
<td>22.7%</td>
<td>5.3%</td>
<td>15.9%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Immigrant VFR</td>
<td>10.5%</td>
<td>24.8%</td>
<td>11.1%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Missionary expatriate</td>
<td>20.3%</td>
<td>5.0%</td>
<td>13.3%</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

**STD** (Sexually Transmitted Disease)
Place of exposure
Gastro-intestinal diseases

Acute diarrhea 22.7%

Giardia 4.3%

Amebas 1.4% Campylobacter 2.2%

Shigella 1.1%
Place of exposure
Febrile systemic illnesses

- Typhoid fever: 0.3%
- Dengue: 2.4%
- Chikungunya: 0.2%
- Rickettsiosis: 0.6%
- P. falciparum: 5.3%
- 1.4%
- 13.9%
- 6.3%
- 32.0%
Place of exposure
Dermatologic

Larva migrans 1.8%
Leishmania 0.2%
Myiasis 0.3%
Animal-related injuries requiring rabies PEP 1.4%

L mig 2.6%
Leishm 0.7%
Myias 2.0%
3.3%
3.3%
4.3%
3.3%
2.8%
3.3%
Place of exposure
Other diseases

- Respiratory syndroms: 7.3%
- Genito-urinary and STD: 3.0%
- Schistosomiasis: 0.9%
- Other diseases: 3.0%
Country of residence

- Dengue 2.4%
- Chikungunya 0.2%
- P. falciparum 5.3%
- Animal-related injuries requiring rabies PEP 1.4%

Disease Prevalence:
- Dengue 2.4%
- Chikungunya 0.2%
- P. falciparum 5.3%
- Animal-related injuries requiring rabies PEP 1.4%
Multiple Correspondence Analysis

Correspondence Analysis for Presence-Absence

ANADEV® Laboratory of Biomathematics, Informatics, Medical Statistics and Epidemiology, Faculty of Medicine of Marseille.
Europeans versus non-Europeans

ORs adjusted for travel duration

- Africa/IOI
- Latin America
- South Asia

- Tourist
- Imm VFR
Risk groups : targets for prevention

- **Acute diarrhea**:
  all categories of European travellers to South Central Asia, North Africa and Middle East, but particularly classic tourist-travellers

- **P. falciparum malaria**:
  immigrant-travellers from Italy and France who visit friends and relatives in sub-Saharan Africa and the Indian Ocean Islands.

- **Dengue**:
  travellers to South East Asia

- **Thyphoid fever**:
  travellers to South Central Asia
Risk groups: targets for prevention

- **Rickettsiosis**: travellers to sub-Saharan Africa

- **Dermatological conditions**: tourist travellers to the Caribbean and Central and South America (parasitic diseases) and to North Africa, Middle East and South East Asia (Potentially rabid animal bites)

- **STD**: missionary expatriate and immigrant VFR travellers to Eastern Europe, South East Asia and Caribbean.
Conclusion

- Surveillance in European travellers encompassing a wide range of sites in Europe and addressing all travel-related diseases is a critical issue in order to detect alarming events and if required, to organise a rapid response, as well as to provide reliable data to promote evidence-based travel medicine in Europe.
THANK YOU

www.geosentinel.org   www.eurotravnet.eu