Strongyloidiasis and schistosomiasis: screen, treat or forget?

Some 30–100 million people are estimated to be infected worldwide (probably an underestimate)


Important health problems in migrants?

Schistosomiasis: pooled prevalence >20% SSA

C. Greenaway et al. 2018: Prevalence of strongyloidiasis and schistosomiasis among migrants (Lancet GH, under review)

Accepted! Great job Chris!!!

Important health problems in migrants?

Strongyloidiasis: pooled prevalence >10% EAP, SSA and LAC

C. Greenaway et al. 2018. Prevalence of strongyloidiasis and schistosomiasis among migrants (Lancet GH, accepted)
## Important health problems in migrants?

**Rome 2018, preliminary, unpublished data:**

**Strongyloidiasis prevalence (IFAT): SSA 81/398 (20%)**  
**LAC 37/248 (15%)**

**Schistosomiasis prevalence (ICT): SSA 66/400 (16.5%)**

L. Marrone et al., September 2018

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### Symptoms of chronic, uncomplicated strongyloidiasis

<table>
<thead>
<tr>
<th>Study</th>
<th>Exa infected Events</th>
<th>Controls Events</th>
<th>OR 95% CI</th>
<th>Weight (fixed)</th>
<th>Weight (random)</th>
</tr>
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<tbody>
<tr>
<td>Coser et al. (2017)</td>
<td>750 652</td>
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### Cicle of S. stercoralis


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### Symptoms of chronic, uncomplicated strongyloidiasis

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### Severe strongyloidiasis: 67% patients under steroids

**Other conditions**

- HTLV 1
- HIV
- Alcoholism
- Malnutrition
- Pregnancy?
- Transplant
- Cancer

**How to quantify the risk of hyperinfection/dissemination? We need a stroke of genius!**

Diagnosis: is a satisfactory test available for screening?

<table>
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<tr>
<th>Test</th>
<th>Prevalence</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>BORDIER ELISA</td>
<td>10.0%</td>
<td>85.4%</td>
<td>98.8%</td>
</tr>
<tr>
<td></td>
<td>20.0%</td>
<td>92.9%</td>
<td>97.4%</td>
</tr>
<tr>
<td>IVD ELISA</td>
<td>10.0%</td>
<td>91.8%</td>
<td>99.0%</td>
</tr>
<tr>
<td></td>
<td>20.0%</td>
<td>96.2%</td>
<td>97.8%</td>
</tr>
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Is an effective treatment available? Ok ivermectin...But how many doses?

Preliminary results...

No difference!!

Schistosomiasis - Lifecycle

Important health problem?

Schistosomiasis

- S. mansoni (japonicum): mild to moderate (if any) intestinal symptoms for years;
- Liver fibrosis, portal hypertension, death if untreated
- S. haematobium: mild to moderate (if any) urogenital symptoms for years;
- Hydronephrosis, renal failure, class A carcinogen for bladder cancer

Source: F. Tamarozzi, CTD Nepra

Important health problem?

This bladder “tumor” virtually disappeared in one month after pq treatment

Source: F. Tamarozzi, CTD Nepra
Diagnosis: is a satisfactory test available for screening?

- Presence of eggs in stools or in urine
- Serology (type and cute-off)
- Circulating antigens (CCA/CAN)
- Symptoms and eosinophilia
- PCR? Urines? Stools?

Table 3. Predictive values of a combination of positive ICT (Se 96% Sp 79%, PPV 72%, NPV 97%) and a positive (PPV) or a negative (NPV) second test, according to Latent Class Analysis (prev=35%)

<table>
<thead>
<tr>
<th>Second test</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCA</td>
<td>90%</td>
<td>47%</td>
</tr>
<tr>
<td>ELISA</td>
<td>98%</td>
<td>51%</td>
</tr>
<tr>
<td>WB</td>
<td>82%</td>
<td>87%</td>
</tr>
<tr>
<td>Microscopy</td>
<td>100%</td>
<td>49%</td>
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Accuracy of parasitological and immunological tests for the screening of human schistosomiasis in immigrants and refugees from African countries: An approach with Latent Class Analysis
PLOS Neglected Tropical Diseases 11(6): e0005593

Is an effective treatment available? Ok praziquantel...But how many doses? 40 mg/kg single dose..but...

- In non-endemic countries → no existing guidelines/recommendations on management of (acute) and chronic schistosomiasis
To screen or not to screen?

1. Important health problem
2. Natural history well understood
3. Detectable early stage
4. Early treatment more beneficial
5. Suitable test for early stage
6. Acceptable test
7. Adequate intervals determined
8. Adequate health services
9. Risks less than benefits
10. Balance cost/benefits

Wilson & Junger criteria WHO 1968

Conclusions and an unanswered last question

- Relevant health problems
- Screening recommended (e.g. new Italian MOH guidelines)

Is screening feasible considering the current political mainstream in many countries?