Alcohol and Tuberculosis

Claire Murphy
John Bernardo
Boston

Alcohol Cures Tuberculosis?

To the Editor of The New York Times:

"Alcohol for Tuberculosis. Whisky, Beer, and Wine Useful for Consumptives, says Dr. Wiley."

"...among the food material which had justly attained a high place as nutriment for persons troubled with tuberculosis was alcohol."

Extensive experience in the treatment of tuberculosis has convinced me that alcohol can never be considered a food for the consumptive.

S. A. Knopf, M.D., referring to AAAS article by Dr. H. W. Wiley (FDA)
New York, Dec 31, 1904

Tuberculosis and Alcohol Abuse*

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Cases</th>
<th>Cases with Information on Excess EtOH Use</th>
<th>Cases Reporting Excess EtOH Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>10,893</td>
<td>10,609 (97.4%)</td>
<td>1,382 (13%)</td>
</tr>
<tr>
<td>2005</td>
<td>13,234</td>
<td>12,668 (97.5%)</td>
<td>1,789 (13.9%)</td>
</tr>
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* CDC: Reported Tuberculosis in the United States, 2005-2009
Alcohol and TB

- Susceptibility
- Extent of disease
- Delays in diagnosis
- Extended transmission
- Treatment issues

Susceptibility

- Impaired innate defense
  - BALB/c mice: EtOH or std liquid diet \(\rightarrow\) H37Rv IT*
  - EtOH mice had higher organism burdens, reduced specific Lung CD4 and CD8 cell proliferation and IFN-\(\gamma\) responses to \(M.\ th\)
- Social situations
  - Exogenous reinfection in Shelter Setting**: Pine Street Inn, Boston, 1986
- Overall risk
  - Review of 21 studies***: Defined as >40g EtOH/d (appr. 3 beers) or diagnosis of alcoholism
  - RR for TB disease: 2.9 (CI: 1.9-4.6)

** Nardell, EA, et al. NEJM 315:1570, 1986

Extent of Disease

- Alcohol abuse and TB in N. Carolina 1994-2006*:
  - \(n = 5556\)
  - Large overlap: EtOH/Homeless/Illicit drug use
  - Pulmonary disease more common in alcoholics (92.5% vs. 77.2%)
    - Cavitary (36.8% vs. 28.2%)
    - Sputum smear-positive (65.9% vs. 45.8%)
  - Unclear if EtOH leads to increased transmission
- Alcohol abuse in Texas, 1995-2001**: \(n = 1250\)
  - No association between alcohol abuse and cavitary TB disease

Delays in Diagnosis and Extended Transmission

- Access to health care
  - Systemic issues:
    - Health insurance
    - Recognition of illness and referral to care
  - Personal priorities: EtOH > everything
    - Denial of illness
    - Self motivation

- Impaired contact investigation
  - High risk contacts to cases are not identified, screened:
    - Missed cases in community


Alcohol Abuse and TB Treatment

Nonadherence

<table>
<thead>
<tr>
<th>Risk</th>
<th>OR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol abuse</td>
<td>5.96</td>
<td>2.73-13.02</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Injection drugs</td>
<td>5.24</td>
<td>2.14-12.81</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Homeless</td>
<td>2.98</td>
<td>1.18-7.52</td>
<td>0.02</td>
</tr>
<tr>
<td>Male</td>
<td>2.38</td>
<td>0.83-6.81</td>
<td>0.11</td>
</tr>
</tbody>
</table>

* Hamburg, 1997-2001

Treatment Issues

- Systemic issues and Personal Priorities
  - Case management
    - Access to medications
    - Who pays?
  - Adherence
    - Directly observed treatment (DOT) locating patients
  - Need for Hospitalization
    - Voluntary or enforced
  - Identification of contacts
    - Contact investigation (CI) and treatment of contacts
  - Continued drinking
    - Medication toxicities
  - Behavioral issues
  - Treatment defaults and delayed completion?
    - Minimized by enhanced case management
How Do We Do It?

Clinical Services

- Bi-weekly TB clinic staffed with TB Providers
  - Pulmonologist
  - Nurse/Nurse Practitioner
- Patients referred primarily by nurses and shelter staff
  - Based on +PPD status and/or assessment of respiratory symptoms and "cough log"
- Radiology/Laboratory services available on-site
- Electronic Medical Record: BHCHP
Epidemiologic Notes and Reports

Drug-Resistant Tuberculosis among the Homeless — Boston

In the period February 1984–March 1985, 26 confirmed cases of tuberculosis (TB) were reported among homeless people in Boston (Figure 1). All 26 cases have been associated with three large shelters. The estimated total population of homeless people in Boston is 6,000. Nineteen of the 26 cases were counted in 1984; this represents an incidence of 316.7 per 100,000, a greater than sixfold increase over the 1983 case rate of approximately 50.0/100,000. By comparison, the TB case rate for the rest of Boston in 1984 was 19.0/100,000, and the rate for Massachusetts excluding Boston was 4.8/100,000.

The outbreak was recognized because of reports among the homeless of a number of TB cases due to multiresistant organisms. As a result of this recognition, a screening program using Mantoux tuberculin skin tests, chest roentgenograms, and sputum examinations was

FIGURE 1. Reported tuberculosis cases among homeless persons, by month of report — Boston, Massachusetts, 1984-1985

*ISONIAZID AND SREPTOMYCIN RESISTANT.
TB Prevention

- Clinical evaluations on-site by TB clinician
- Review risks/benefits of treatment of latent TB infection (LTBI)
  - TB team, patient, and primary care
  - Emphasis on adherence issues
  - Regimens:
    - INH x 9mos vs. Rif x 4mos*
- Baseline HIV testing, LFT, CBC
- For all persons on treatment:
  - Monthly visits and EDUcation
  - Stop med immediately if side effects are suspected
  - For persons at-risk: Monthly laboratory monitoring
- If not treated: Seek care if symptoms of TB develop
- Continued alcohol use is discouraged


Remember Not Everyone Who Likes a “Taste” is Homeless…

- “Nearly 10 million youths, ages 12 to 20, in this country report they have consumed alcohol in the past 30 days. The rate of current alcohol consumption increases with increasing age according to the 2008 National Survey on Drug Use and Health from 2% at age 12, 22% at age 16, and 56% at age 20.”
  
  http://www.centurycouncil.org/learn-the-facts/underage-drinking-stats

Is it ETOH….?

- In the teenager who demonstrates abnormal LFT’s….
- In the college student who admits to drinking “just a few”
- What is “just a few”?
AUDIT: Screening for ETOH Consumption

Getting Through Treatment … HELP!!

- Nursing Case Management
  - For all cases and suspects
  - Local Health Department authority/responsibility
- Involuntary Hospitalization: the Menace Law
  - In Massachusetts, a patient who is a danger to the public's health can be hospitalized against his/her will until that threat no longer exists
    - Includes due process
    - Allows for 15 days' observation
    - Extension by court, if necessary
  - Rarely is used

*Mass. General Law c. 111, s. 94, A&B

A Nice “Home” Visit

- That nice watering hole..
- The prime locale of several TB outbreaks over the last 20 years
Box 4

The Alcohol Use Disorders Identification Test: Interview Version

Read questions as written. Record answers carefully. Begin the AUDIT by saying “Now I am going to ask you some questions about your use of alcoholic beverages during this past year.” Explain what is meant by “alcoholic beverages” by using local examples of beer, wine, vodka, etc. Code answers in terms of “standard drinks”. Place the correct answer number in the box at the right.

1. How often do you have a drink containing alcohol?
   (0) Never [Skip to Qs 9-10]
   (1) Monthly or less
   (2) 2 to 4 times a month
   (3) 2 to 3 times a week
   (4) 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   (0) 1 or 2
   (1) 3 or 4
   (2) 5 or 6
   (3) 7, 8, or 9
   (4) 10 or more

3. How often do you have six or more drinks on one occasion?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily
   Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0

4. How often during the last year have you found that you were not able to stop drinking once you had started?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

5. How often during the last year have you failed to do what was normally expected from you because of drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?
   (0) No
   (2) Yes, but not in the last year
   (4) Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?
    (0) No
    (2) Yes, but not in the last year
    (4) Yes, during the last year

Record total of specific items here

If total is greater than recommended cut-off, consult User’s Manual.
A Little INH Goes a Long Way......

- Meet Mr. Walsh
  - 9:30 am on a nice Thursday am at the “Clock”
  - Looking to complete his 7th month of INH for LTBI after being exposed to a drinking partner who just happened to be smear +
  - Nurse assess his adherence and need for monthly LFT’s
  - Increased accessibility to his meds and a TB specialist