Challenges of TB treatment and substance abuse

Al Story
Plan

• Epidemiology
• Complex Comorbidities
• Barriers to Dx and Rx
• Conclusion
Challenge 1: Incidence

• Physiological effects, environment and risk behaviors
• TB and substance use share common risk factors
  – Immune suppression
  – Malnutrition
  – Smoking
  – Alcohol
  – Prison
  – Homelessness
  – HIV

Substance Use Disorders / High Risk Drug Use

Mental illness

Homelessness

Severe infectious diseases

Prison
Challenge 2: Prevalence

- Symptoms masked / suppressed
- Prolonged infectivity
- Delayed Dx / Health service access / stigma
- Social mixing

- $R_0 = \text{outbreaks}$

Thanks to the custody staff at the Metropolitan Police Saville Row Police station in London for providing access to crack smoking paraphernalia
30-year-old male ‘crack-cocaine’ user presented to A&E with heamoptysis.

Given oral antibiotics for presumed bronchitis and discharged home.

2 weeks later presented with heamoptysis.

CXR and CT revealed a cylindrical density in the lumen of the left mainstem bronchus.

4cm X 1cm glass tube with jagged edges removed by bronchoscopy.

No recollection of aspiration!

TB and Crack

- 2.4 times more likely to be infectious at diagnosed
- Increased risk not due to diagnostic delays
  - Crack users had the shortest diagnostic delays, potentially attributable to rapidly progressive, debilitating disease
  - Crack users were also more likely to seek treatment at an emergency department rather than primary care services

Crack more than tripled the number of cocaine users in the city between 1986-1988. According to New York State statistics, there were 182,000 regular cocaine users in New York City in 1986. That number grew to an estimated total of 600,000 predominantly crack users by 1988.

NYT Feb 20th 1989
Challenge 3: Taking drugs

• Adherence
• Resistance
• Opiates and opioid dependency
  
  methadone is metabolised by CYP 2B6
  
  rifampicin is a potent CYP 2B6 inducer

The optimization of methadone dosing whilst treating with rifampicin: A pharmacokinetic modeling study

Raj K.S. Badhan, Rosalind Gittins, Dina Al Zabit
OST

• Escalation to 150-160mg required – BD?! 
• De-escalation 
• Interactions common with other CYP 2B6 inducers  
  – Efavirenz  
  – Nevirapine  
  – Ritonavir  
• Buprenorphine levels affected by inducers e.g. rifampicin via CYP 3A4
Challenge 4: Cure?

• Chronic lung disease
• Relapse
• Recovery
Solutions

• Awareness
• LTBI – 1HP
• ACF
• Integrated care – OST / DOT
• Residential model – Olallo House
High prevalence of latent tuberculosis and bloodborne virus infection in a homeless population

Robert W Aldridge,1,2 Andrew C Hayward,1,2,3 Sara Hemming,1,2,4 Susan K Yates,1,2,4 Gloria Ferenando,1,2,4 Lucia Possas,1,2,4 Elizabeth Garber,1,2,4 John M Watson,1 Anna Maria Geretti,5 Timothy Daniel McHugh,6 Marc Lipman,4,7 Alistair Story8

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Hepatitis C among vulnerable populations: A seroprevalence study of homeless, people who inject drugs and prisoners in London

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May 2018 J Viral Hepat
Integrated One-stop-shop screening

Digital X-ray

Reporting station

Reception

Waiting area

Laboratory

Clinical examination
Smartphone-enabled video-observed versus directly observed treatment for tuberculosis: a multicentre, analyst-blinded, randomised, controlled superiority trial

Alistair Story, Robert W Aldridge, Catherine M Smith, Elizabeth Garber, Joe Hall, Gloria Ferenando, Lucia Possas, Sara Hemming, Fatima Wurie, Serena Luchenski, Ibrahim Abubakar, Timothy D McHugh, Peter J White, John M Watson, Marc Lipman, Richard Garfein, Andrew C Hayward
Euston flood: Homeless hostel and mosque swamped in water
Thank you