Addiction and Infectious Diseases :an ABC

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Conflict of Interest and Lobbying

- Dr Gill has served in the last five years as an ad hoc member of Canadian HIV Advisory Boards to Merck, Gilead, ViiV and Janssen.
- The University of Calgary has received research funds held in trust for Dr Gill from NIH, CIHR, Gilead, VIIV, the European Union ,and the Universities of New South Wales ,Toronto and Alberta.
- Dr Gill has in last year met his city councilor to lobby against the current logic, evaluations used and operations of downtown bike path system .

Objectives of workshop

- Introduce basic knowledge of common ,clinically important infections interfacing with addiction medicine.
- Highlight new approaches and understanding of these infectious diseases
- Highlight opportunity to intervene successfully in preventing or treating uch infections for everyone's benefit .

Addictions and Infectious Diseases .

Three areas of interest will be explored linking addictions and infectious diseases .Core knowledge on common infections will be discussed divided into three scenarios.

1. Direct risk of infection to an addict from practising the habit .
2. Indirect risk of infection from social circumstances associated from additions.
3. Risk of infection to others particularly concern by HCW from interacting with addicts .

Direct risk of infection from habit in addicts

- Risks of infection in PWID (Persons who Inject Drugs)

  Viruses :E.G HIV,HCV ,HBV .

  Bacteria : E.G MSSA .MRSA ,etc.
- Risks of infection from inhalation

  e.g. .Mycobacteria from marijuana

Endocarditis

- Contaminated equipment (needle spoon syringe etc), unclean skin or drug itself pose the risk of infecting heart valve .
- Often right sided and may involve lung abscesses .
- Presentation subtle may include : Fever ,malaise ,weakness, tiredness ,night sweats ,cough and perhaps dyspnoea .
- **Please order blood culture before antibiotics**
- Pathogens tell the story
- S Aureus either MSSA or MRSA from skin contamination
- Oral streptococci and polymicrobial from spitting into drug mix
- Other rare but some from contaminated drug cutting agent
- Israeli endocarditis outbreak from change in drug of choice

Endocarditis Therapy

- Antibiotics are selected for the causative organism. Hence importance for knowing the organism . **No easy one antibiotic drug cover everything antibiotic** .
- Require intravenous antibiotic for two (very best scenario) to common scenario of six weeks
- May require CV surgery to assess if large vegetations ,significant embolization or profound heart failure from damaged valves.
- Hospitalization often difficult for active addict (passes ,IV access etc)
- Yo can only replace heart valve 2-3 times !

Endocarditis Prevention

- Clean equipment /needle exchange
- Good injection technique
- Sterile product

  all reduce risk of this life-threatening disease

Hepatitis C

- Highly transmissible virus .Mainly acquired from injection process but sexual (mainly MSM) and inhalational transmissions reported .More transmissible than HIV.
- 80% of infected remain viremic with long term risk of cirrhosis ,hepatic cancer or liver failure .
- Can be cured by current drugs (which cost around 65 000 $ for six week course) and loss of infectivity to others .
- Modern therapy is one ,well tolerated ,pill a day.
- In Alberta ,all HCV are now regardless of presence of liver damage eligible for free Govt funded therapy (contingent on commitment to complete therapy).Therapy not funded for everyone in many jurisdictions .
- Substantial reversal of fibrosis and cirrhosis risk .
- Reinfection possible (20% over 5 years Canadian HIV/HCV co infection study) and future funded repeat therapy unclear .

HIV Infection

Diagnosis ,management and prognosis have changed dramatically in last five years .Still more common in addicts due to IDU or sexual from addictions.

- Lifelong progressive destruction of immunity .
- Push now towards widespread testing including use of rapid POC and self testing .Relevant to all addictions programs .
- Seamless easy engagement to HIV care critical.
- Social stabilisation may first be need to facilitate adherence .
- Early antiretroviral therapy and treat to suppression easily achievable with potent safe and well tolerated drugs .
- Erratic adherence may be worse than no therapy
- Patients with suppressed viral loads are non infectious and their immune deficiency will likely autocorrect .
- TREATMENT usually returns a person to normal (for them) life expectancy

What about HIV PEP and PrEP

Post Exposure Prophylaxis (PEP)

- A significant large bore hypodermic need stick injury from an untreated HIV person carries 4/1000 risk for infection.
- Fortunately pool of untreated HIV in Calgary is low (92% of diagnosed in care suppressed)
- If administered very soon after exposure PEP can reduce risk for transmission but time sensitive i.e. few hours optimal with reducing benefit for up to 72 h max .

What about Pre Exposure Prophylaxis (PrEP) for PWID ?

- I.e. provide HIV drug to be taken daily to reduce risk of HIV
- IN MSM and CSW reduces risk of HIV
- Study underway in IDU in Thailand . Multiple issues raised by PrEP .

STI

- Sex work may fund addiction
- Unprotected sex carries risk for many STI
- Immunisation and protection promoted but role for PrEP ?
- Currently have epidemic of syphilis in Alberta marked in MSM community and also in CSW .(Genital ulcer or body rash particularly on palms is a clue)
- Re emergence of Gonorrhoea (Sites include GU/oral/anal/eye)
- Increasing concern re Gonorrhoea strains now with borderline sensitivity to current antibiotics .
- LGV ,CT, and MG all emerging STI concerns with resistance issues
- Regular check up for addicted CSW important

Chemsex

- Crystal methamphetamine, mephedrone and GHB/GBL provide a particular sexually-disinhibiting “high”.
- Used by small, (international) but very sexually active group of MSM
- In London one clinic has 3000 MSM using chemsex
- When combined with technology of Grindr is a significant factor in HIV and HCV transmission in some cities .
- May be coming to a city near you !!

Piggy backing programs

- Use of methadone once a day programs for simultaneous piggy back of short term therapies
- Eg Take M T Drugs at same time as methadone

  Possible use in HCV therapies

  Works but not solution for life long therapies such as HIV or HBV

Risk of Infections from Addiction lifestyle

- Addictions are associated with lifestyles often leading to poverty, poor hygiene and cohabitations.
- Transmissible infectious diseases thrive in such conditions regardless of addiction .Two classic life-threatening examples of such infections are M Tuberculosis and Methicillin Resistant S Aureus (MRSA)
- Other infections seen such as lice and scabies .

MRSA

- Addiction does not per se increases risk of MRSA
- But Social disadvantage often places this with addictions at risk
- Poor hygiene and living in close proximity along with poor nutrition and higher rated of exposure
- CA MRSA 10 exploded on Calgary scene in 2004 -2006 and is highly but not exclusively localised to communities living in close proximity e.g. Jail ,drop in centre and some indigenous reserves

Clinical features of MRSA

- Similar to MSSA but presence of PVL gene makes skin presentation different often burrowing abscesses buttocks abdomen as well as common skin sites and risk for pneumonia

Treatment of MRSA

- Local abscesses : Incision and drainage with culture. May not require any antibiotics .
- If significant infection options include intravenous Vancomycin,oral TMP/SMX , clindamycin or linezolid .
- One may need to treat serious infection with both Beta lactam as well as drug above pending microbiology
- Endocarditis may require double IV antibiotics making in hospital abx mandatory
- Eradication of chronic carrier status extraordinarily difficult as often entire household infected including the pets .Relapse or reinfection common even with chlorhexidine body washes ,mupirocin to nose bid and oral antibiotics along with “total laundry and housecleaning “

M Tuberculosis

- After inhalational infection M Tb may cause immediate pulmonary disease or become Latent.
- Lifetime risk of reactivation of latent M Tb is 5%
- Usually reactivation occurs when malnourished and/or immune suppressed eg steroids, cancer ,aging
- In untreated HIV annual risk of latent M Tb is 10% every year ie almost everyone will develop active disease before other AIDS OI present .

M Tuberculosis epidemiology

- Increased prevalence in migrants from endemic areas of world
- Increased prevalence in addicts
- Increased exposure due to poor housing
- Poor nutrition
- Co morbidities such as HIV .
- Latent TB detected by TST or new test Quantiferon Gold
- Emergence of multidrug resistance

Latent M Tb

- **Detection**: traditionally detected by Mantoux or tuberculin skin test but this may not be practical for addicts due to need for reading at 48H .New blood test Quantiferon Gold looks for lymphocyte memory to Tb and is at least as good as TST and ideal for addicts at major risk of TB eg HIV infected .requires special blood tubes and pre approval by PHL
- **Treatment** : nine months of INH or some shorter regimens are curative and remove the risk of M Tb activation

Active M Tb

- Critical for health of patient for early diagnosis
- Critical for his/her community for early diagnosis
- Critical for your HCW health for early diagnosis
- Lab testing improving Genexpert on sputum CSF etc
- Current therapy is 6-12 months with initially four then 2-3 appropriate antibiotics .
- Global issue with MDR and XDR M Tb strains some of which are untreatable (originating for Africa and Eastern Europe)
- Few good new drugs in pipeline

Risk to HCW from Addicts

- Beware of needle stick from anyone .If one occurs source test if possible immediately ,check netcare and seek help re HIV PEP and baseline testing for HCV .
- Be immunised re HBV
- Good hygiene likely has major benefit re MRSA along with good genes, scabies lice etc seen more often in addicts
- Think M Tb for those with symptoms.
- Early diagnosis is good for the patient ,the community as well as for exposed HCW .

Summary

- While effective therapies are currently available for all of the infections seen commonly in patients with addictions all require good adherence and team work to make them work .
- Teamwork essential with the patient ,addictions, housing ,social work pharmacy and infectious diseases all communicating to optimise outcomes in very needy and challenging patients

Questions ?