HBV and HIV
HIV and HBV

VG Naidoo
Gastroenterology
HIV - infectious disease

HBV - gastroenterology

Co-infection = Co-operation

However, few sub-specialists & lots of patients
What does a gastroenterologist do?

Upper GI endoscopy (Dx, Rx eg. band ligation, EMR)
Colonoscopy (polypectomy, EMR)
ERCP (therapeutic)
Endoscopic ultrasound
Manometry etc etc
→ Interventional + Cognitive

Oesophagohepatogastroenteropancreaticocolonologist
Focus on HBV

HIV-HBV co-infection

Managing the liver disease
HBV

350-400 million people chronic HBsAg carriers

Variable disease progression

Inactive carrier / Chronic HBV $\rightarrow$ Cirrhosis / HCC

HCV, HIV, Alcohol
Modes of transmission

Sexual

Vertical

Parenteral (blood-to-blood)

Horizontal through close contact / sharing of infected items (early childhood)
Diagnosing HBV - Simple

What is the HBsAg?

HBsAg negative / HBsAg positive

Clinical context
LFT (Albumin, Bilirubin, ALT), INR, Plt count
Ultrasound
Confusion

**HBeAg**: replication, high HBV loads

**Antibodies**

- **anti-HBs**: vaccination, previous exposure
- **anti-HBc IgM**: acute infection, flare
- **anti-HBc IgG**: occult HBV (if HBsAg -), false +

**HBV-DNA Viral Load**
HBsAg is key

HBeAg (not that important, pre-core mutants)

ALT, Cirrhosis

HBV-DNA Viral Load

Liver biopsy in very selected cases
Goals of HBV Treatment

Prevent progression to cirrhosis

Prevent HCC
What are my targets with Rx?

1st prize: clear HBsAg
2nd prize: clear HBeAg
3rd prize: suppress HBV-DNA load

Viral failure (V/L) → Biochemical failure (ALT) → Histology
HBV - Natural History

Dynamic process

Acute HBV infection (adults / children)

Immune tolerant phase: Normal ALT, High V/L (?)

Immune reactive (eAg+/-): Increase ALT, Lower V/L

Inactive HBV carrier: Normal ALT, Low V/L

HBsAg negative phase, Occult HBV
Liver Biopsy

Nice to have but RISK vs BENEFIT

Unclear cases eg. high V/L, mild ALT elevations

Sampling error (patchy disease)

Standardized Scoring (METAVIR score) of activity & fibrosis

Non-invasive methods to evaluate fibrosis (Fibroscan, APRI)
Accelerated Progression to Cirrhosis

Alcohol (yes, you can!)

HIV

HCV

Steatohepatitis
Treatment - HBV

- Pegylated Interferon
- Tenofovir
- Entecavir

(Lamivudine, Emtricitabine, Telbivudine, Adefovir)
HIV and HBV

All HBV patients tested for HIV

All HIV patients tested for HBsAg and anti-HBs

Consider **Vaccination** (sAg & anti-HBs negative)

- lower response (25% in CD4 < 200)
- ART then vaccinate
- anti-HBs < 10iu, revaccinate
Easy Decision to Treat in HIV-HBV

**CD4 < 350 / symptomatic HIV → ARV indicated**

Tenofovir, Lamivudine

**Signs and/or laboratory tests indicating cirrhosis**

No signs of cirrhosis, CD4>350 but ALT elevated and

HBV-DNA > 2000IU/ml or HBeAg+
Pegylated Interferon

Lower HBV-DNA, Elevated ALT (>2xULN)

HBV-HIV: durable response rare

No resistance issues, limited treatment duration (48wks)

Appreciable side-effects (counselling, support)

?CD4 > 500 before HIV treatment needed
18 subjects, HIV-HBV co-infected and Rx naive PegIFN + HAART (48wks)  
(EFV/Lopinavir-Ritonavir + TFV / Emtricitabine)  
Median CD4 112  
HBV-DNA 20 200 000 IU/ml, All eAg+  
HIV-RNA undetectable (24 and 48wks): 100%  
HBeAg seroconversion in 16 patients at 48wks  
HBsAg seroconversion in 6 patients at 48wks
PegIFN plus HAART was well tolerated and exhibited high viral effectiveness in HIV/HBV treatment-naive co-infected patients.

JA Mata-Marin et al. 
J Int AIDS Soc. 2010; 13(S4):P207
HIV-HBV co-infected needing HBV Rx

HBeAg + and/or HBV-DNA > 2000 IU/ml
(or HBV-DNA with cirrhosis)

AND

Elevated ALT (>2x ULN)
(or histologically active disease with normal ALT)
HBV-DNA < 2000 IU/ml

AND

Elevated ALT (around 2x ULN)

Consider liver biopsy to guide treatment decision!

Fibroscan if available!

Normal ALT: <19 females, <31 males
Co-infected Not requiring HIV / HBV Rx

CD4 > 350, no HIV related symptoms

AND

HBV-DNA < 2000 IU/ml
Normal ALT
Histology (if biopsy done, not essential)

→ Mild / non-progressing HBV disease
Monitor

CD4 count every 3 to 6 months

HIV symptoms every 3 to 6 months

ALT every 3 to 6 months
Tenofovir

Creatinine Clearance

> 50ml/min, 300mg dly

30-49ml/min, 300mg every 48hrs

> 10-29ml/min (or dialysis), 300mg every 72-96hrs
Liver Disease - HBV

Clinical diagnosis of cirrhosis

Portal hypertension

Management of ascites and varices

HCC screening: US and AFP every 6/12
HIV, HBV
On ARVs
AFP > 7000
Oesophagus
UGIB
Varices +
Fibrin Clot
Endoscopic Variceal Band Ligation
Concluding Remarks

HbsAg and ALT drives the decisions

HBV-DNA useful but expensive (don’t repeat and repeat)

Histology – useful, limitations, not always necessary

ARV - 2 anti-HBV drugs in co-infected - easy

?Role of PegIFN in co-infected

?Role of HBsAg quantification and genotyping

Saving hepatocytes, Preventing neoplastic hepatocytes