

Hepatology quiz

Dr Ming Han Lim
Gastroenterologist

What is the name of this animal?



a) Capybara

b) Wombat

c) Quokka

d) Wallaby

What is the name of this animal?



a) Capybara



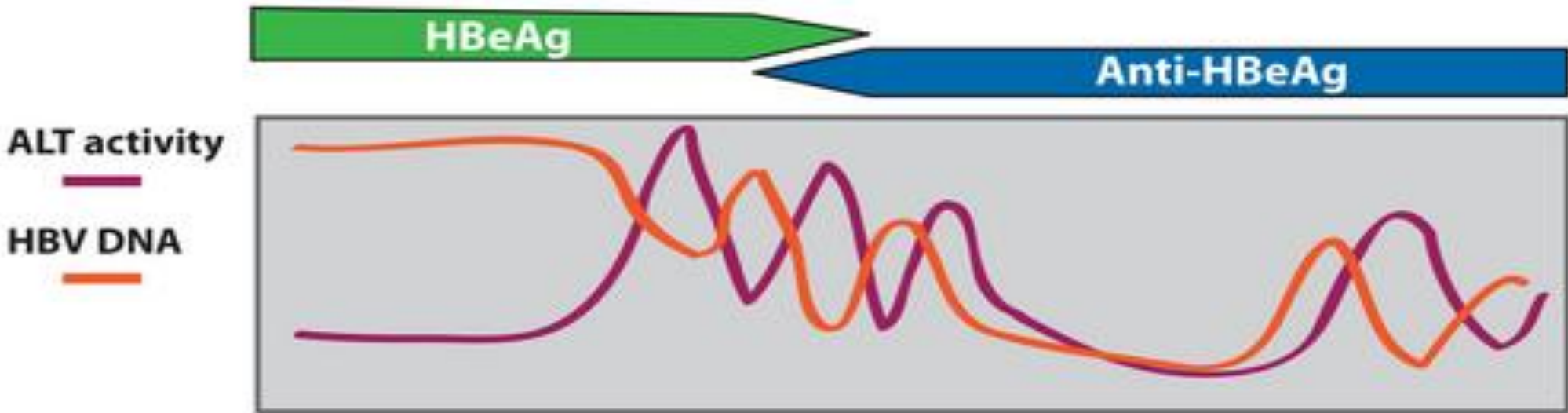
b) Wombat



c) **Quokka**

d) Wallaby

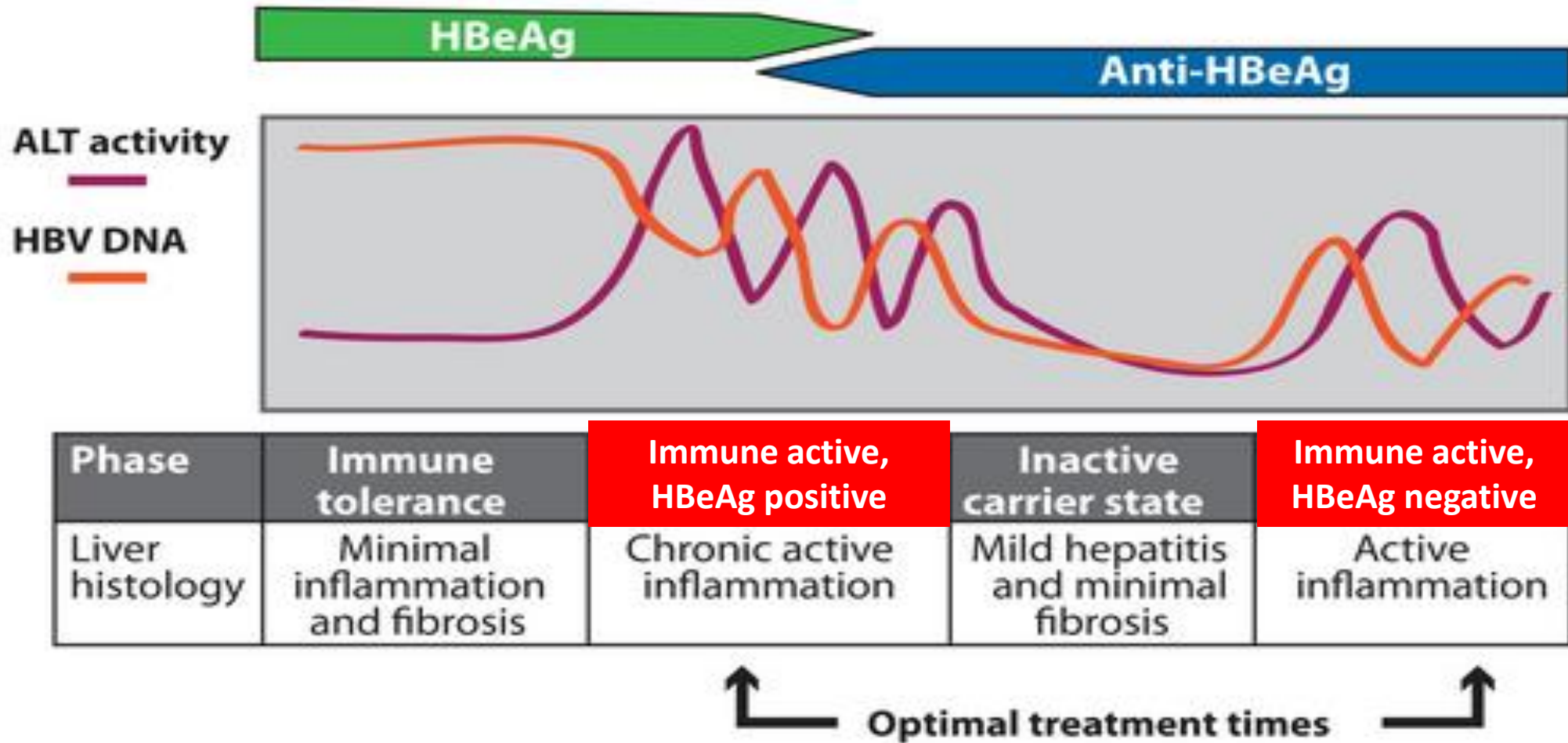
Phases of chronic HBV



Phase	Immune tolerance	Immune clearance	Inactive carrier state	Reactivation
Liver histology	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

↑ Optimal treatment times ↑

Phases of chronic HBV



Available treatments for chronic hepatitis B?

Available treatments for chronic hepatitis B?

- Antiviral therapy i.e. Entecavir and Tenofovir
 - Highly effective, well tolerated, very low resistance
 - SA application not required since 2018 i.e. generic available
- Functional cure (HB surface Ag loss) => **“HOLY GRAIL”** (THE FUTURE!)
 - Hopefully within the next 10 years
 - Not covered in this talk

Previous PHARMAC criteria for treating HBV

HBeAg positive

- Abnormal ALT
- OR
- Pregnancy (3rd trimester)
- OR
- Bridging fibrosis /cirrhosis on liver histology

HBeAg negative

- Abnormal ALT
- AND
- HBV DNA >2000 IU/mL
- AND
- At least stage 2 fibrosis on liver histology

HBsAg positive

- On chemo
- OR
- On a biologic
- OR
- On prednisone \geq 20mg daily for > 4 weeks

Previous HBV

(HBsAg -ve, HBcAb +ve)

- On Rituximab

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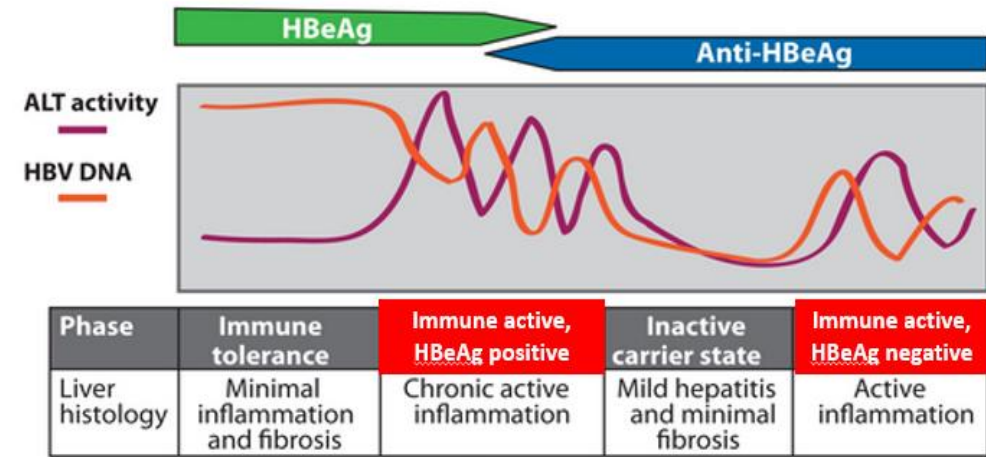
- **On Rituximab**

Duration of treatment? Lifelong?

HBeAg positive

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/cirrhosis on
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Duration of treatment?



HBeAg positive

- Abnormal ALT
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Until sustained HBeAg conversion is achieved ie HBeAg negative 6 months apart



Continue Tenofovir for at least 3-6 months post partum
★ **baby should have HBIg & HBV vaccination at birth**



Lifelong or until a cure is available

Duration of treatment? Lifelong?

HBeAg negative

- Abnormal ALT
AND
- HBV DNA
>2000 IU/mL
AND
- At least stage 2
fibrosis on liver
histology

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Lifelong or until a cure is available

Duration of treatment? Lifelong?

HBsAg positive

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- On prednisone
≥ 20mg daily
for > 4 weeks

Duration of treatment? Lifelong?

Continue antiviral therapy for
at least 6 months after withdrawal
of immunosuppression

★ check HBV DNA at baseline

HBsAg positive

- On chemo
- OR
- On a biologic
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- On prednisone
≥ 20mg daily
for > 4 weeks

Duration of treatment? Lifelong?

Previous HBV

(HBsAg -ve, HBcAb +ve)

- On Rituximab

Duration of treatment? Lifelong?

Previous HBV
(HBsAg -ve, HBcAb +ve)

- On Rituximab



Continue antiviral therapy for at least 12 months after withdrawal of immunosuppression

★ check HBV DNA at baseline

What is the name of this animal?



a) Red panda

b) Raccoon

c) Coati

d) Ring tailed cat

What is the name of this animal?



a) Red panda



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Case 1

- 51 year old man
- Unwell for 2 weeks with epigastric discomfort & anorexia
- Noticed dark coloured urine

Total Bilirubin	51	umol/L	H	< 25
Alk. Phosphatase	144	U/L	H	40 - 120
GGT	159	U/L	H	< 60
ALT	2643	U/L	HH	< 45
Total Protein	79	g/L		66 - 84
Albumin	34	g/L		32 - 48
Globulin	45	g/L	H	25 - 41

What are the 4 broad causes of acute hepatitis (ALT & AST >1000)?

Total Bilirubin	51	umol/L	H	< 25
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What are the 4 broad causes of acute hepatitis?

- Viral
- Drugs
- Autoimmune
- Vascular/ischaemia

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Apart from a more detailed history, what other investigations would be indicated?

- Viral

Total Bilirubin	51	umol/L	H	< 25
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Alk. Phosphatase	144	U/L	H	40 - 120
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- Drugs

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- Autoimmune

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- Vascular/ischaemia

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Apart from a more detailed history, what other investigations would be indicated?

- Viral
 - Hepatitis, EBV, CMV serologies
- Drugs
 - Paracetamol level
- Autoimmune
 - ANA, SMA, AMA, anti-LKM
- Vascular/ischaemia
 - Liver ultrasound with Doppler

Total Bilirubin	51	umol/L	H	< 25
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Coagulation screen

Case 1

- HB surface Ag positive
- Liver ultrasound reported
 - Gallbladder features suggestive of acalculous cholecystitis
 - No evidence of biliary obstruction
 - No cause of elevated ferritin
 - Recommend priority gastroenterologist specialist opinion => referred to Gastro clinic

Serum Iron	34	umol/L	H	10-30
Transferrin	1.6	g/L	L	1.7-3.4
Transferrin Saturation	0.85		HH	0.15-0.50
Ferritin	7218	ug/L	HH	20-450

Case 1

Are there any other HBV blood tests that would be helpful?

- HB surface Ag positive
- Liver ultrasound reported
 - Gallbladder features suggestive of acalculous cholecystitis
 - No evidence of biliary obstruction
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Haemochromatosis?

Does this patient need a cholecystectomy?

What would be the indications for inpatient management?

What would be the indications for inpatient management?

- Abnormal INR i.e. liver synthetic dysfunction

AND / OR

- Altered level of consciousness

AND / OR

- Patient unable to tolerate orally

Case 1 – seen in Gastro clinic 4 weeks later

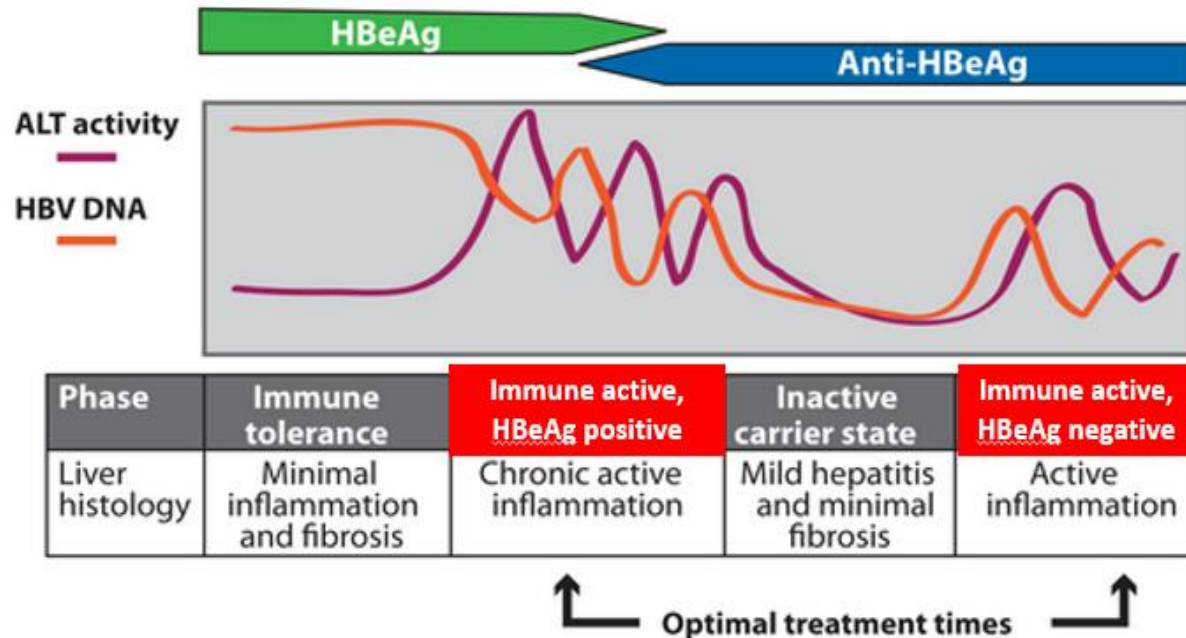
- Feels well. Normal appetite.
- Lost 6kg with acute illness but regaining weight.
- **HBV DNA 54 IU/mL i.e. very low**
- **aFP 678 (normal range: <10)**

What does this mean?

	25/06/19 11:17	25/06/19 11:17	25/06/19 11:17	28/04/21 10:05	01/06/21 10:41
Total Bilirubin	8	+7		51	26
Alk. Phosphatase	+86	+84		144	126
GGT	75	+74		159	73
ALT	191		+155	2643	111
Total Protein	75	+80		79	74
Albumin	37	+37		34	26
Globulin	38	+43		45	48
Comment					
Comment					
Comment					
Hepatitis B surface Ag			Positive ⁺		
Alpha Fetoprotein			8		
Hepatitis B e Ag			Negative		

Case 1 – would you start him on treatment?

- HBeAg negative
- **HBV DNA 54 IU/mL i.e. very low**
- Fibrosis stage unknown



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Case 1 – should he have a Fibroscan now?

- HBeAg
- HBV DNA 54 IU/mL i.e. very low
- **Fibrosis stage unknown**



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Causes of elevated liver stiffness measurement

- Liver fibrosis
- Liver inflammation
- Liver congestion

Case 1 – started on entecavir

- Multiphase CT liver excluded HCC

Alpha-Fetoprotein

ALPHA FETOPROTEIN

Date	Lab No	Roche ug/L	Siemens ug/L	Ref. Range
01/06/21	4161075	654	678	*
22/07/21	4737023	95		*
12/08/21	4964598	45		* (< 10)

	28/04/21 10:05	01/06/21 10:41	08/06/21 08:36	16/06/21 12:44	21/06/21 15:29	09/07/21 10:21	22/07/21 15:08	12/08/21 11:53
Total Bilirubin	51	26	23	26	16	12	15	15
Alk. Phosphatase	144	126	127	131	151	166	150	135
GGT	159	73	75	69	63	57	58	53
ALT	2643	111	97	85	69	73	60	61
Total Protein	79	74	76	76	78	76	76	80
Albumin	34	26	26	29	29	29	31	34
Globulin	45	48	50	47	49	47	45	46

Case 2

- 49 year old man presenting to hospital with painless jaundice & mild RUQ discomfort
- Tolerating orally
- No encephalopathic
- INR 1.8
- Paracetamol level 44 umol/L

Sodium	138	mmol/L		135-145
Potassium	3.8	mmol/L		3.5-5.2
Chloride	100	mmol/L		95-110
Glucose	7.2	mmol/L		3.0-11.0
Urea	5.3	mmol/L		3.2-7.7
Creatinine	87	umol/L		60-105
Albumin	28	g/L	L	32-48
Protein	71	g/L		66-84
Globulin plasma	43	g/L	H	25-41
Bilirubin	272	umol/L	H	<25
GGT	91	U/L	H	0-60
Alkaline Phosphatase	115	U/L	H	40-110
AST	3919	U/L	H	<45
CK	237	U/L	H	60-220
CRP	29	mg/L	H	0-5
ALT	3904	U/L	H	<45

Case 2

- Admitted for inpatient investigation & management
 - Given Vitamin K 10mg IV
 - Started on N-acetyl cysteine
- His wife asks you “How long has my husband had HBV as I read that acute HBV could be an STI?”
 - Patient denied being unfaithful

Hepatitis B Surface Ag	POSITIVE	A
Hepatitis B S Ab	68	IU/L
Hepatitis B Core (Ab)	POSITIVE	A
Hepatitis B Core IgM	POSITIVE	A
Hepatitis B e Ag	Negative	

How would you interpret the hepatitis serology? What would you tell his wife?