

Hepatic Encephalopathy

Hand in your keys!



Wits University
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Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC 

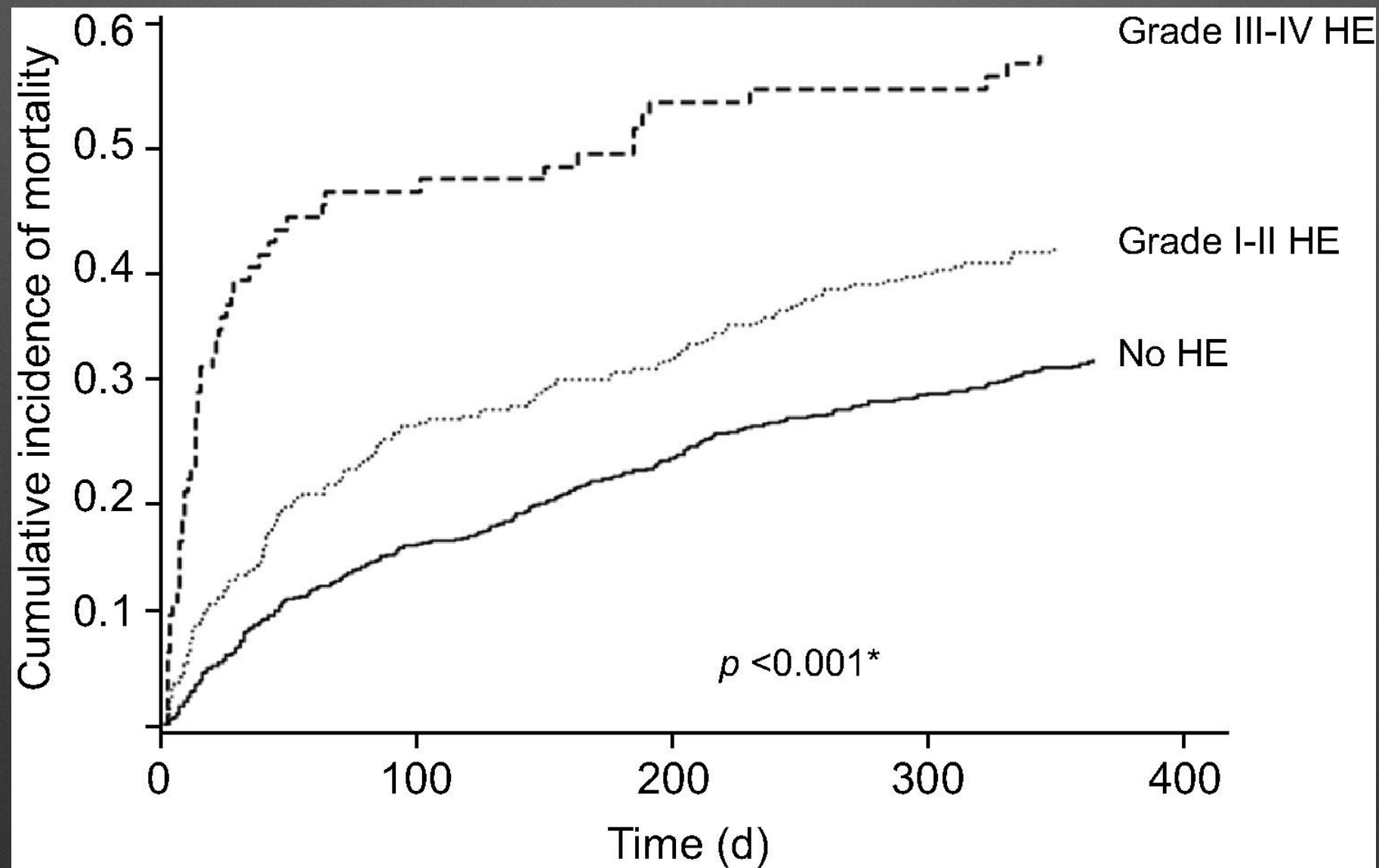


Definition:

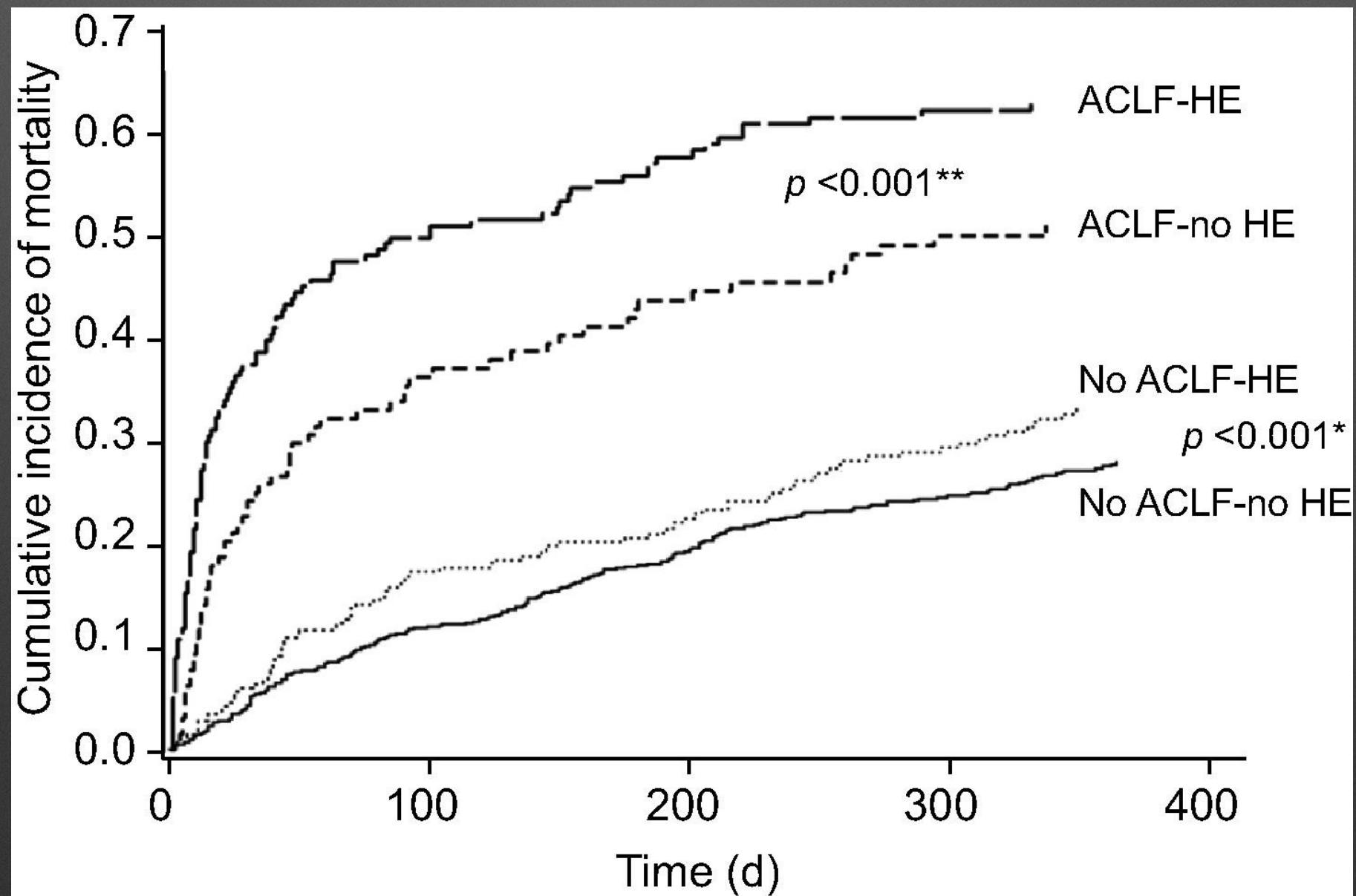
Hepatic encephalopathy is a brain dysfunction caused by liver insufficiency and/or PSS; it manifests as a wide spectrum of neurological or psychiatric abnormalities ranging from subclinical alterations to coma

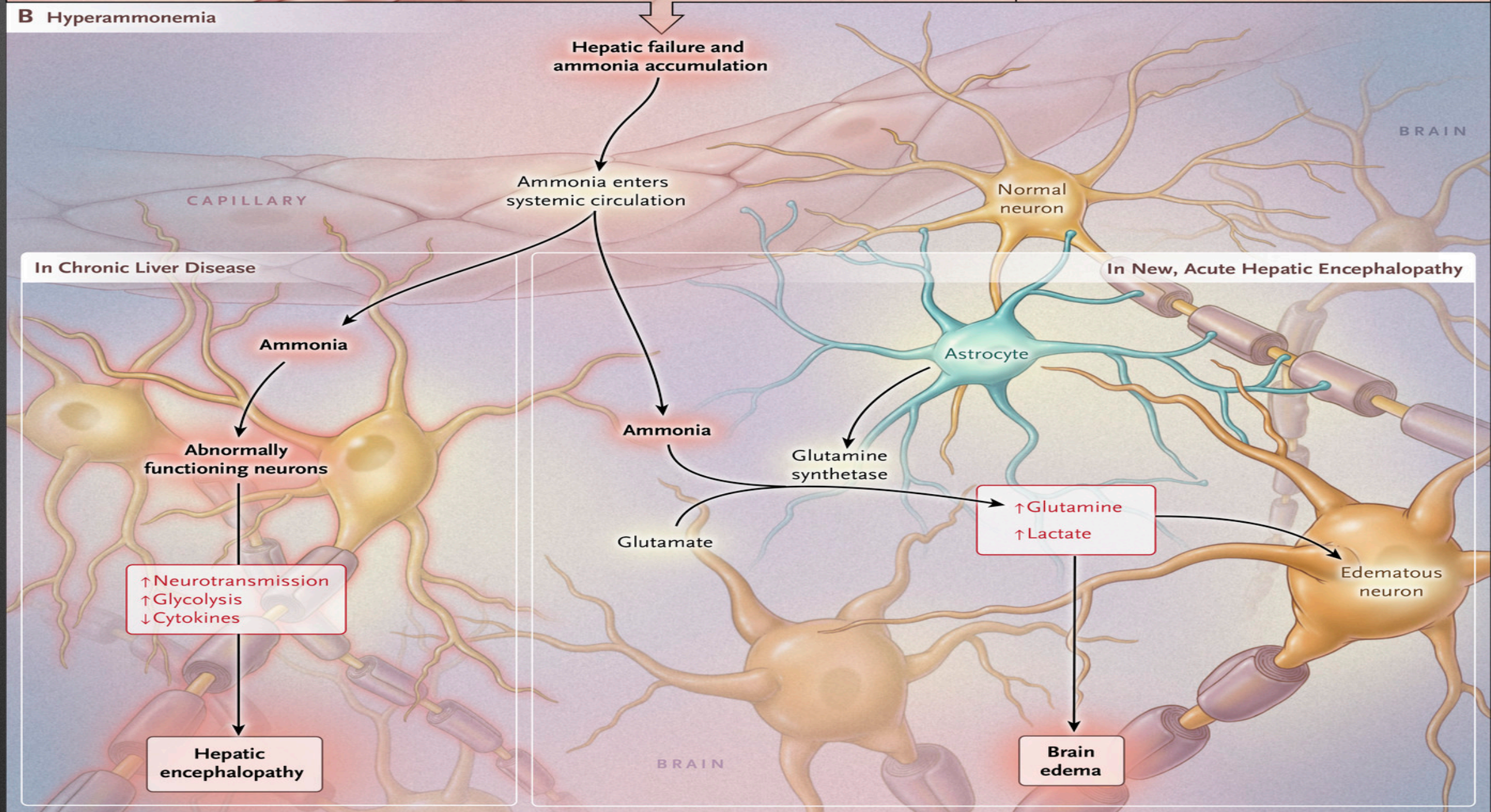
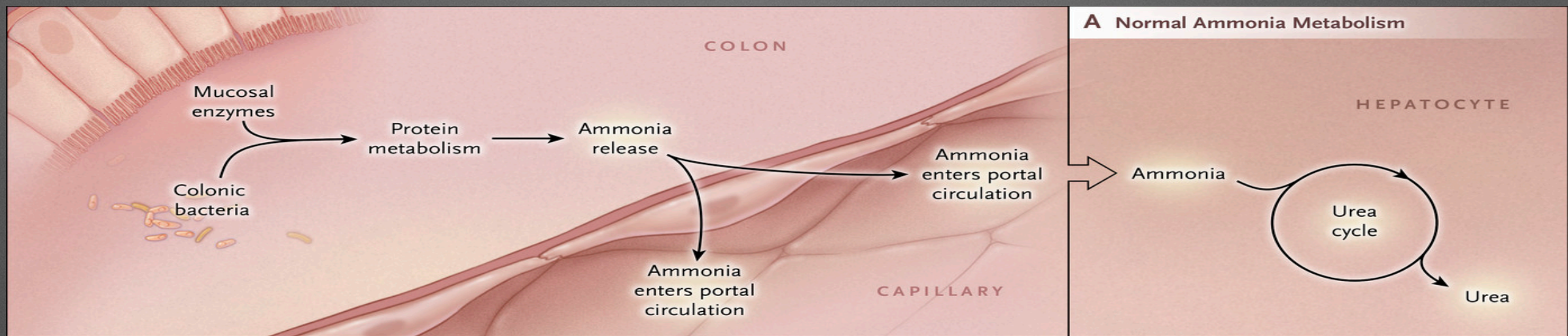
Hepatic Encephalopathy in Chronic Liver Disease: 2014 Practice Guideline by the European Association for the Study of the Liver and the American Association for the Study of Liver Diseases. J Hepatol (2014), <http://dx.doi.org/10.1016/j.jhep.2014.05.042>

Just how much of a problem is it?



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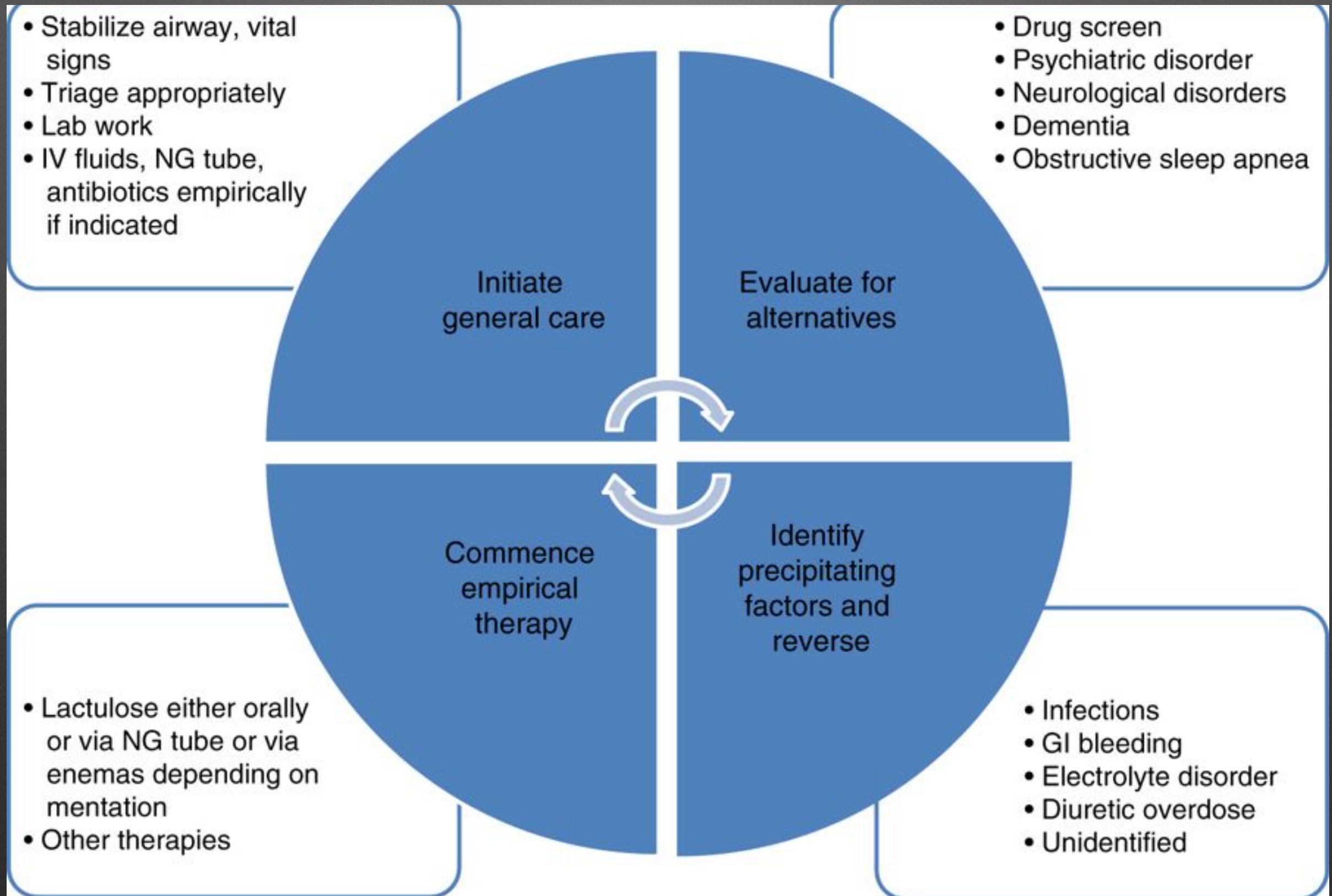
Classification - The 4 Axes

Type	Grade		Timing	Precipitant
A <u>A</u> cute Liver Failure	Minimal	Covert	Episodic no HE >6/12	Precipitated
B Portosystemic shunt or <u>B</u> ypass without cirrhosis	1			
C <u>C</u> irrhosis	2	Overt	Recurrent HE within 6/12	Spontaneous
	3		Persistent Never Resolved	
	4			

Diagnosis

Minimal		
1	Covert	<ul style="list-style-type: none"> • Psychometric testing required • Trivial Lack of awareness • Euphoria or Anxiety • Short Attention span • Impaired Arithmetic • Altered Sleep rhythm
2	Overt	<ul style="list-style-type: none"> • Lethargy • Disorientation • Personality Change • Dyspraxia • Asterixis
3		<ul style="list-style-type: none"> • Somnolence • Responds to Stimuli • Confusion
4		<ul style="list-style-type: none"> • Coma

Overt HE



Precipitants

Episodic	Recurrent
Infections	Electrolyte Disorder
GI bleeding	Infections
Diuretic Overdose	Unidentified
Electrolyte Disorder	Constipation
Constipation	Diuretic Overdose
Unidentified	GI bleeding

Frequency



Diagnosis of Covert HE

- No Clinical Signs
- ISHEN Recommend 2 Psychometric or Neurophysiological tests
- Encephalapp
- Ammonia Good Rule out test



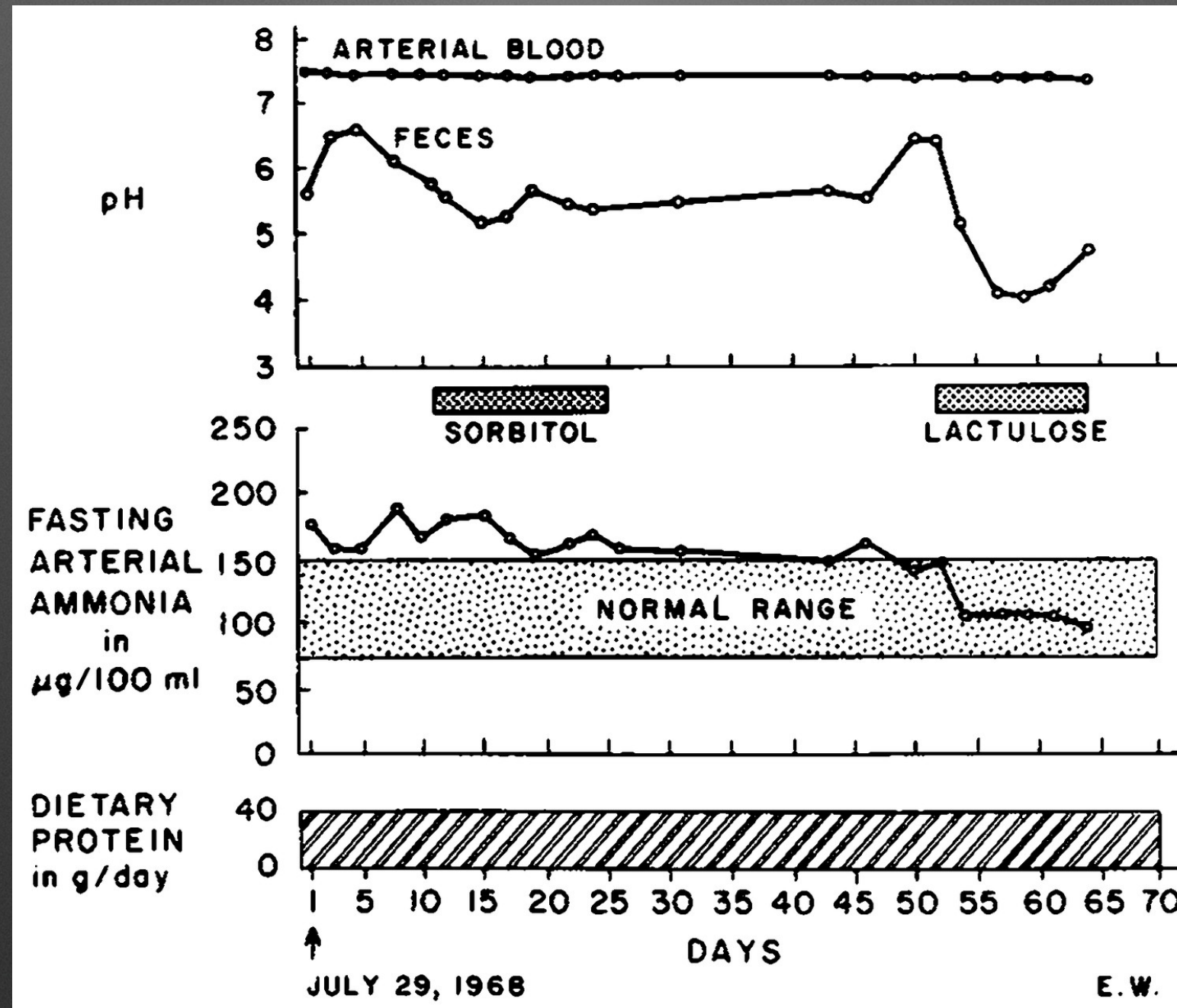
Treatment

- Gut Ammonia reduction
- Intestinal Microbial Modulation
- Therapeutics to affect Nitrogen Balance

Lactulose or Comatose!

- 2-3 soft stools
- Titre dose to effect
- Bolus in OHE
- Cheap
- Poor Compliance

The Lactulose Effect



Treatment - Rifaximin

- Not available in SA yet (section 21)
- US: 2nd line treatment for 1st episode OHE
- US: 1st line for Secondary Prophylaxis
- Under investigation for CHE

Treatment - PEG

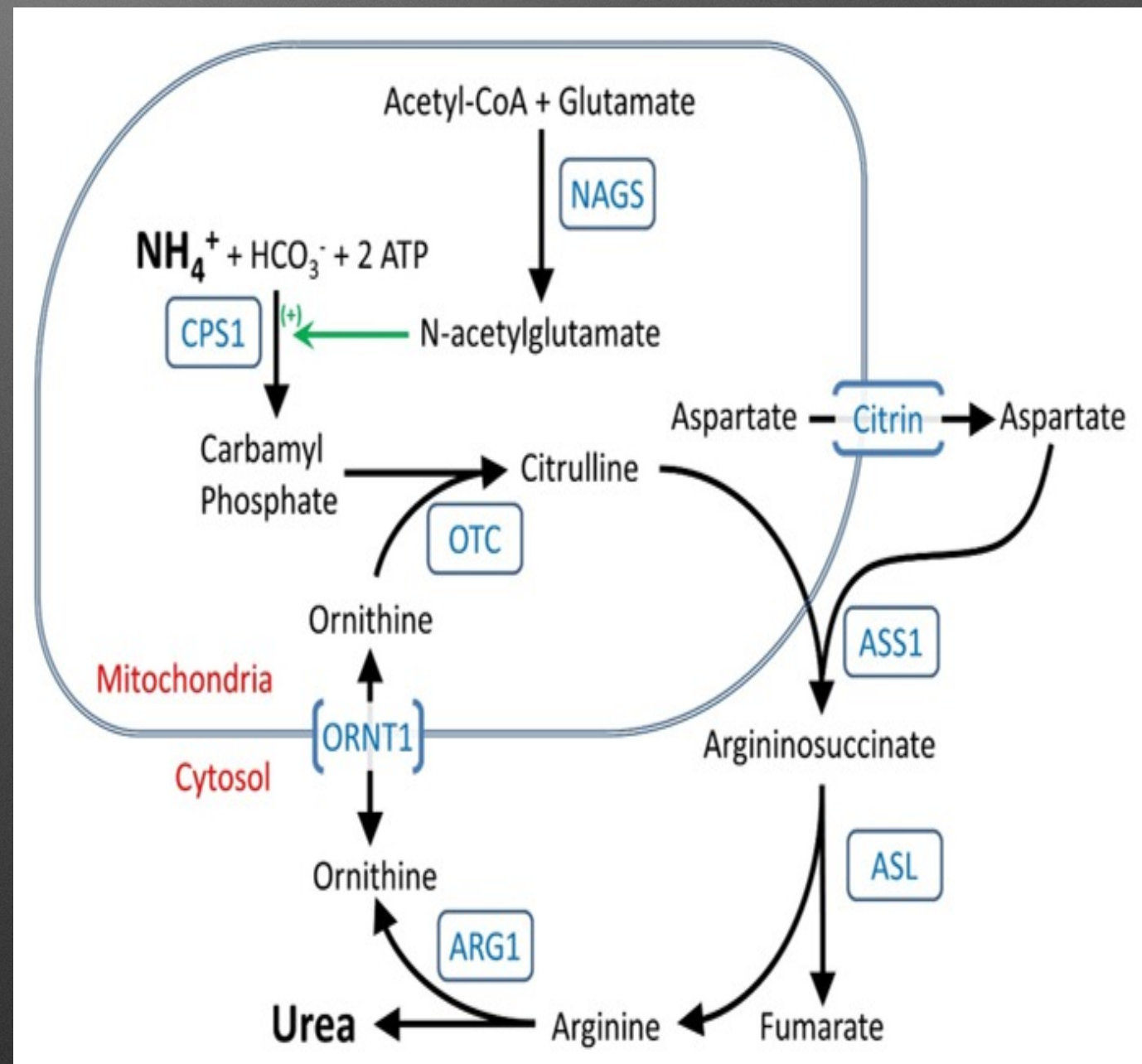
- Polyethylene Glycol
- Powerful laxative
- Improved resolution over a 24 hour period
- Even better with lactulose!

Other Gut based therapies

- Probiotics
- FMT - Under evaluation

Therapies to Affect the Nitrogen Balance

- Liver and Skeletal Muscle
- Zinc
- BCAA
- L-Ornithine L-Aspartate
 - Provide substrate
- Ammonia Scavengers
 - Glycerol/Sodium Phenylbutyrate
 - Ornithine Phenylacetate



Are we making it worse?

- Benzodiazepines
- Psychotropic medication
- PPI's

Secondary Prophylaxis

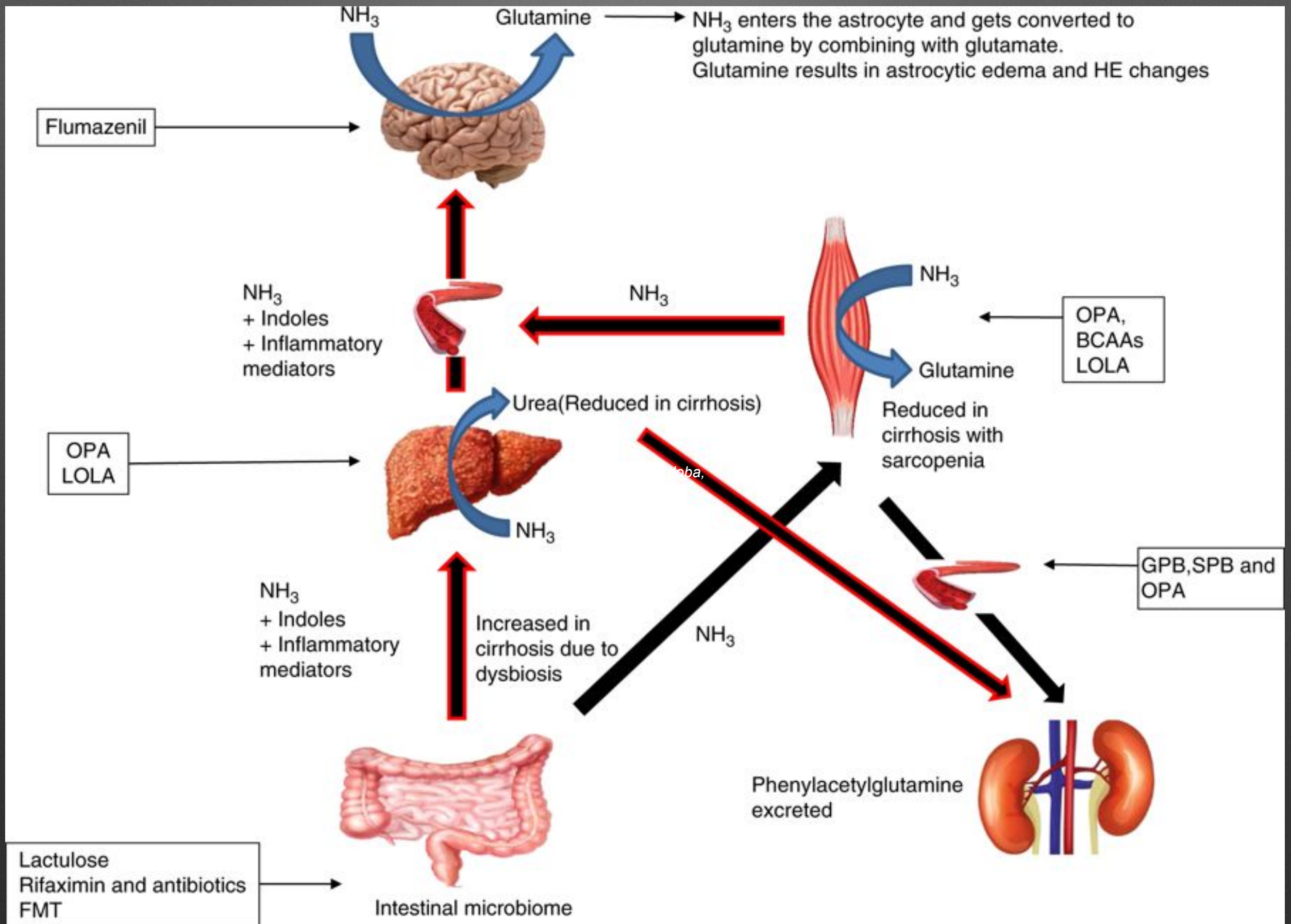
- Lactulose is recommended

Grade II -1 A, 1

- Lactulose and Rifaximin superior

Grade I -1 A, 1

- Other Antibiotics



Covert Encephalopathy

- Difficult to diagnose
- Lactulose shown to delay/prevent 1st episode of OHE
- Current guidelines unable to support treatment

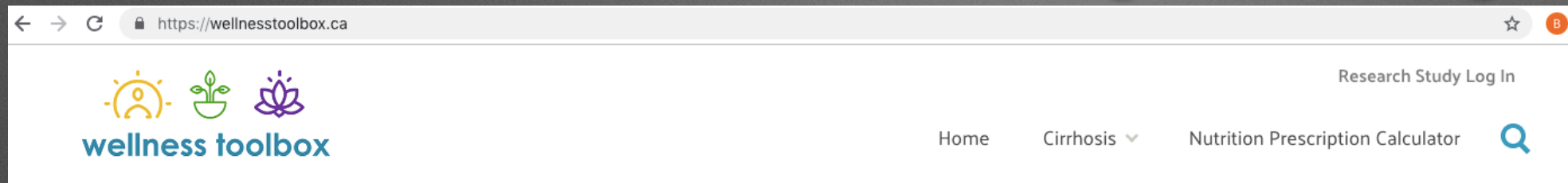
Covert HE

- Nutritional Optimisation
 - Energy - 35-40kcal/kg/day
 - Protein 1.2-1.5g/kg/day
 - Small snacks through the day
 - Late night snack
 - BCAA



GII-2-B-2

Covert Encephalopathy



The Wellness Toolbox

A screenshot of the main content area of the Wellness Toolbox website. The header is identical to the one above. The main text reads: 'Cirrhosis is a chronic condition caused by scarring of the liver. It is caused by many things like fatty liver disease, viral infections , and alcohol use. Fact: 20% to 30% of Canadian adults are at-risk for fatty liver disease! There are many ways to help you stay healthy when living with cirrhosis, such as nutrition & exercising.' Below this text are two large, colorful illustrations. The left illustration shows a variety of fruits and vegetables, including an avocado, watermelon, and carrots. The right illustration shows a muscular arm flexing. Below each illustration is a blue rectangular button with white text: 'Nutrition' for the left and 'Exercise' for the right.

Can Mr HS drive?

- Medical Providers not trained to evaluate fitness to drive
- Act in Best interest of Society and the Patient
- Counsel Against Driving until cleared safe.



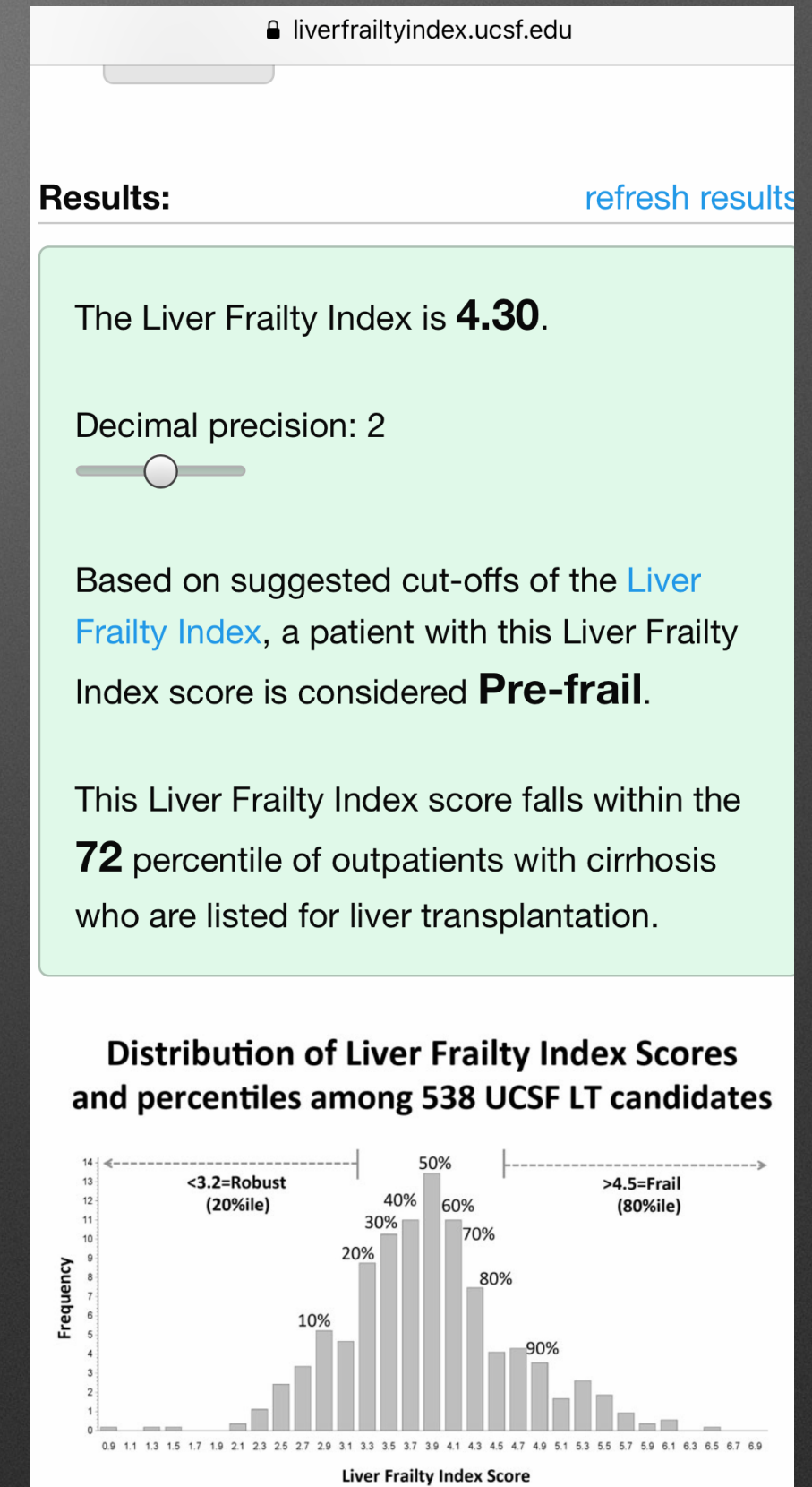
Mr HS

- 60 year old male
- ASH Cirrhosis with decompensation
- MELD 14
- Sober 4/12
- Frailty “eyeball” test acceptable



Mr HS

- 6/52 later
- Patient is hospitalised
- Frailty score of 4.39
- BMI 19
- Grip strength 20



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	3			
	4			Spontaneous

Mr HS

- Medifeed tube inserted
- Prehabilitation
- Protein supplementation
- Lactulose and Rifaximin

Mr HS

- Successfully transplanted
- Declined repeat cognitive testing