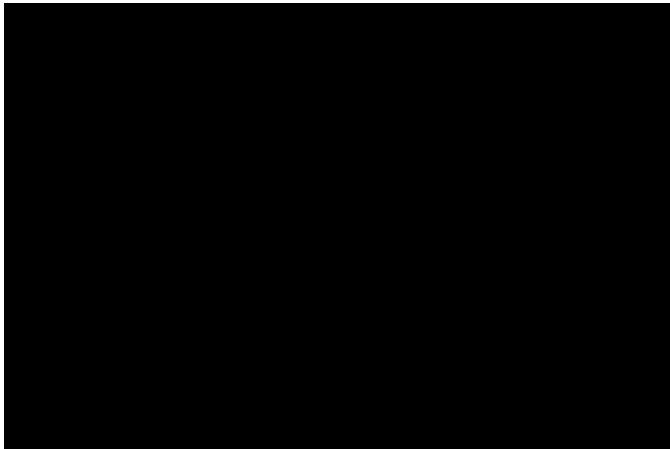


Faculty Disclosure

- **Faculty:** Juan Gonzalez Abraldes
- **Relationships with commercial interests:**
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 - **Speakers Bureau/Honoraria:** Gore / Janssen (lecture fees)
 - **Consulting Fees:** None
 - **Other:** None

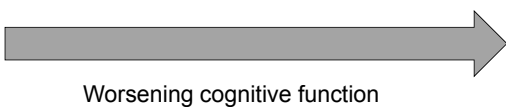




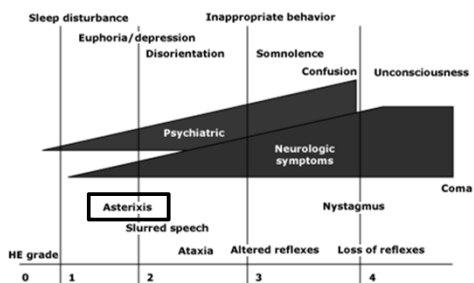
Outline

- Basic concepts: diagnosis and treatment
- Minimal (“covert”) Hepatic Encephalopathy
- HE and driving: what do we do about it

Spectrum of Neuro-Cognitive Impairment in Cirrhosis

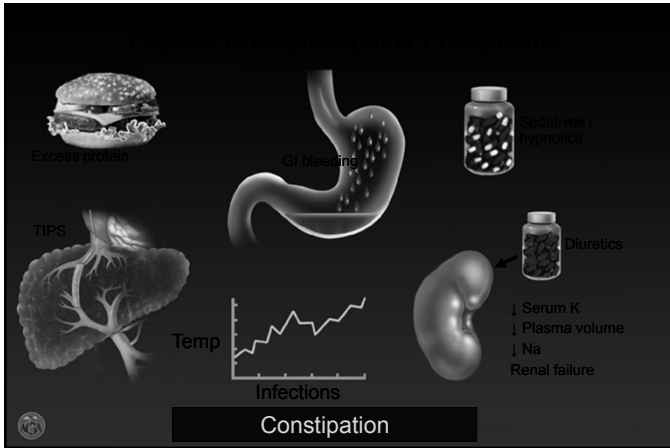


Manifestations and Grades



Features of overt HE

- Fluctuating
- Frequently associated with precipitating factors
- Major goals of therapy: to reverse the acute episode, to keep the patient out of hospital and to prevent recurrent episodes



TREATMENT OF HEPATIC ENCEPHALOPATHY:
1. CORRECTING PRECIPITATING FACTORS

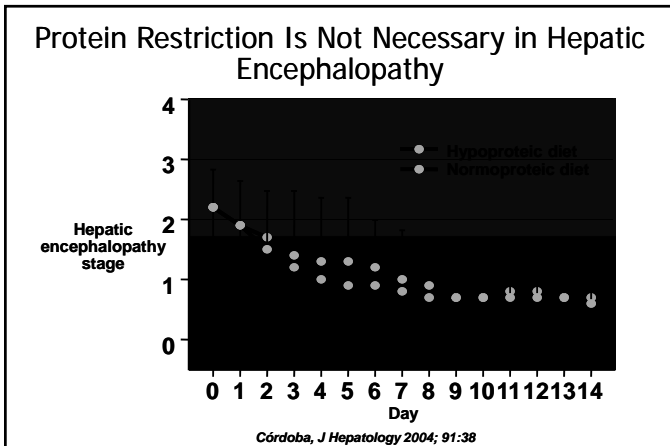
Gastrointestinal hemorrhage
volume replacement
gastroscopy

Infections
sediment, x-ray, diagnostic paracentesis
antibiotics

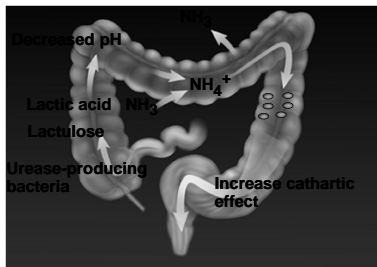
Renal and electrolyte disturbances
stop diuretics. K administration

Drugs
D/C. Flumazenil

Constipation
Dietary transgression } *Education.*
Lactulose. Enemas



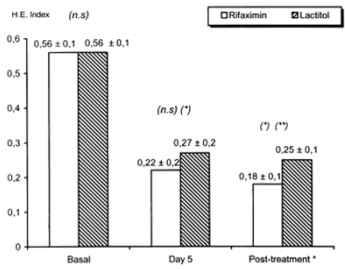
Lactulose or Lactitol



Titrated 2-3 soft stools a day

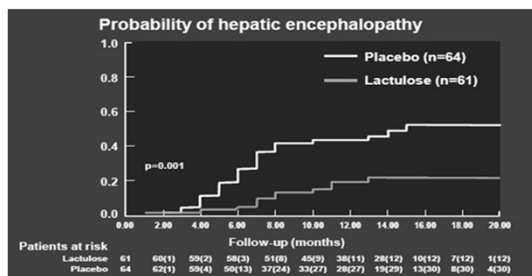
Masini et AL AJG 1999, Pedrosa 2006

Rifaximin is as Effective as Lactitol



Mas et al. J Hepatol 2003

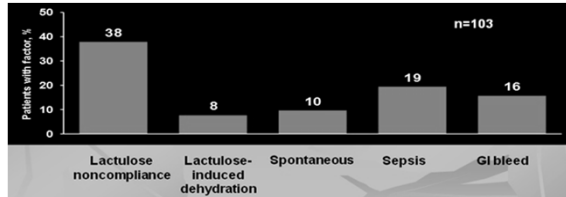
Preventing Recurrent HE



Sharma et al Gastroenterology 2009

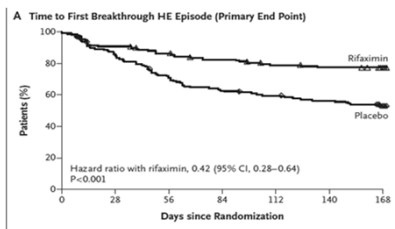
Lactulose for Preventing Recurrent HE

- Factors associated with recurrence



Bajaj et al. APT 2010

Rifaximin in the Prevention of HE Recurrence



Most patients were already treated with Lactulose

Bass et al. NEJM 2010

MINIMAL HEPATIC ENCEPHALOPATHY

Covert (Minimal) Hepatic Encephalopathy

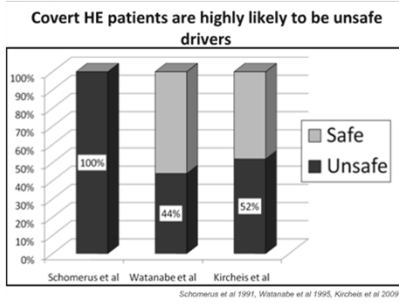
- Occurs in 30-84% of cirrhotic patients without overt hepatic encephalopathy → problem in the definition
- Detected by psychometric and neuropsychological testing → not by clinical history or physical examination

Covert (Minimal) Hepatic Encephalopathy

- difficulties in performing specific tasks such as operating machines and driving
- Impaired QOL
- Increased risk to develop overt HE
- Falls

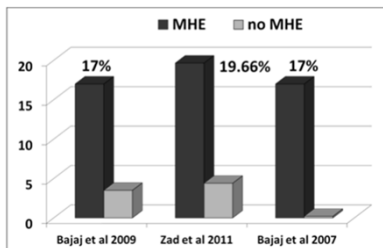
Bajaj, APT 2010

Driving impairment in MHE



Driving impairment in MHE

Driving offences



Diagnosis and Treatment of Covert Hepatic Encephalopathy

- Complex neuropsychological testing: limited availability → I never had access in my career
- Is the Stroop app a game change?

Stroop "Off" State: no words, just symbols

- The task is to correctly and rapidly press the color corresponding to the color of the symbols presented

Presentation of the symbol in a particular color

Touch the correct color

Response Time



Stroop "On" State: Words in discordant colors

- The task is to correctly and rapidly press the color corresponding to the color of the word presented, not the color it means

Presentation of a word in a discordant color

Touch the correct color of the word, not what the word means

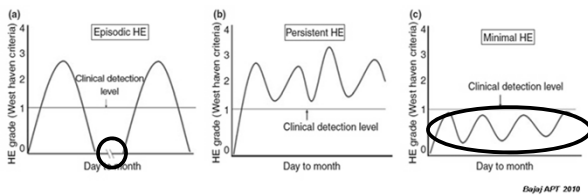
Response Time



Diagnosis and Treatment of Covert Hepatic Encephalopathy

- Complex neuropsychological testing: limited availability → I never had access in my career
- Is the Stroop app a game change? 5 min
 - Correlates with more complex NP tests
 - Age /education dependent
 - Needs external validation
- Responds to Lactulose and Rifaximin

Which Patients Should not Drive?



- Patients with past HE, in remission?
- Patients with presuntive MHE?
- No reference to HE in the CMA driver's guide 2012
- No specific reference in any legislation in the US / Canada

What about Dementia

- Diagnosis of dementia is not sufficient to withdraw driving privileges
- Driving is contraindicated in people who, for cognitive reasons, have an inability to independently perform multiple instrumental activities of daily living or any of the basic activities of daily living. This degree of functional impairment describes a moderate or worse stage of dementia
- People with mild dementia should receive comprehensive off- and on-road testing at specialized driving centers

What can we do about it?

- Discuss and Document: graded approach
- Referral for a driving evaluation
- Reporting to the Licensing authority
 - In Alberta reporting is discretionary, not mandatory
- The MD is legally protected when reporting
- MD does not determine whether a licence will be granted or suspended
- MD describes the situation. Licensing authority makes the decision

CMA driver's guide 2012

Take Home Messages

- Lactulose is more than a laxative
- MHE or covert HE: still not a standardized diagnosis
- No specific guidelines to decide which cirrhotic patients can drive
 - Recovered from OHE and consistently stable?
 - CHE? we do not have the tools for uncover it
