

# Hepatic Encephalopathy in Cirrhosis

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# Objectives

- Define hepatic encephalopathy (HE)
- Understand the clinical features and grading system
- Learn common contributing factors and treatments
- Recognize the impact on patient and family

# What is Hepatic Encphalopathy?

Spectrum of neurological and psychiatric symptoms in the setting of liver dysfunction, and the absence of a primary neurological cause

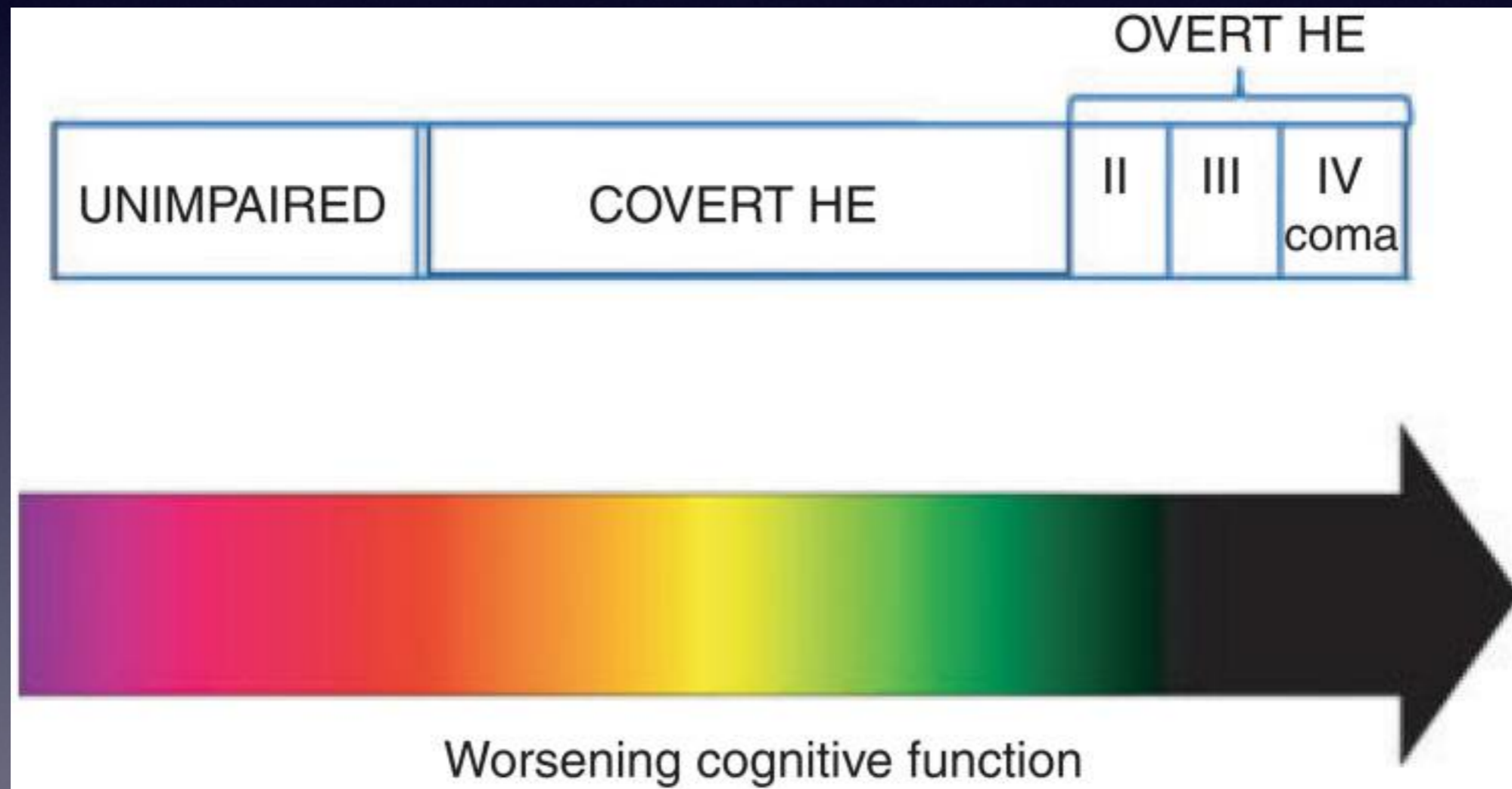
Results from shunting, acute liver failure, and cirrhosis

# Ammonia

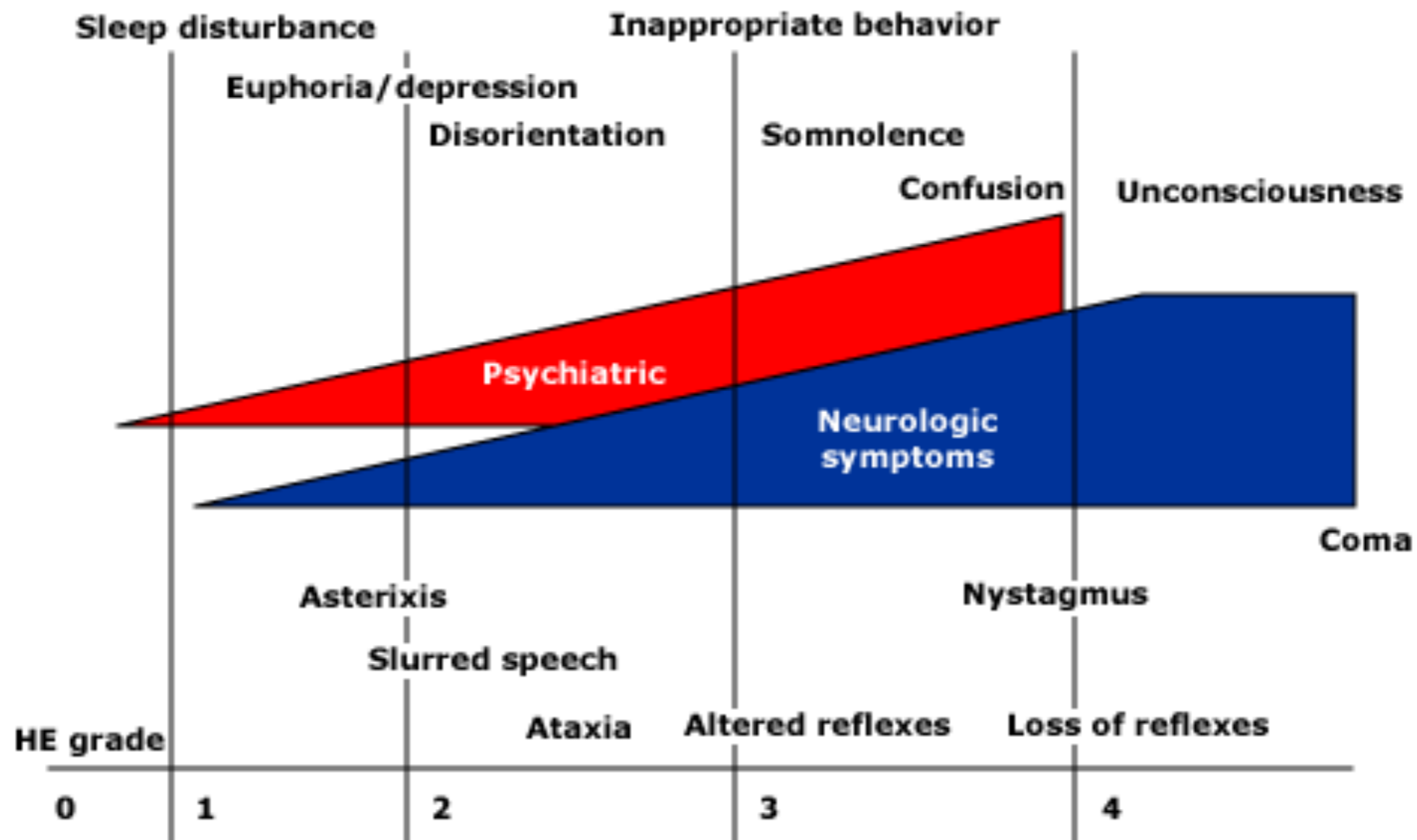
- Generated by gut bacteria
- Typically metabolized through liver
- In cirrhosis, enters systemic circulation and crosses blood-brain barrier
- Levels in the blood do't always reflect clinical picture



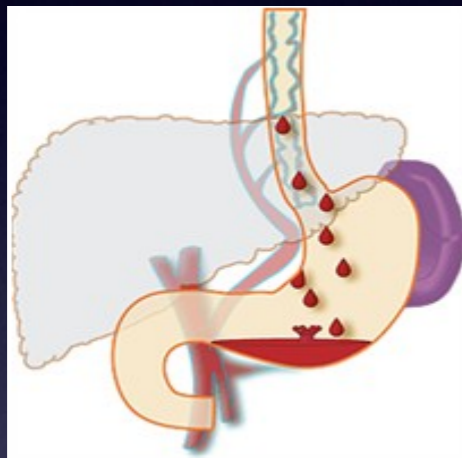
# Spectrum of Neuro-Cognitive Impairment in Cirrhosis



# Clinical Features & Grading



# Common Precipitants



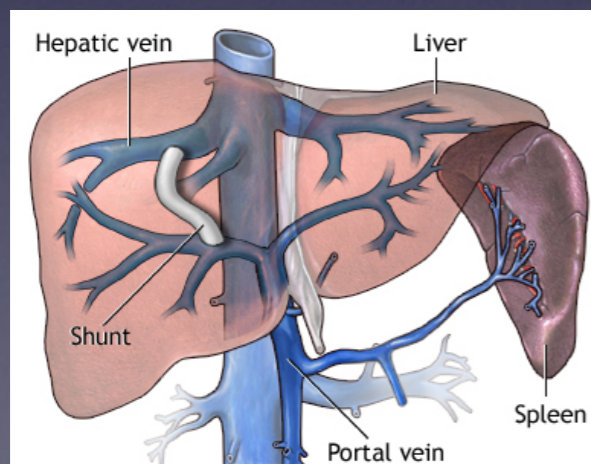
Bleeding



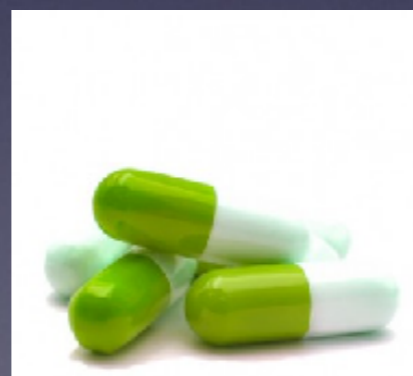
Infection



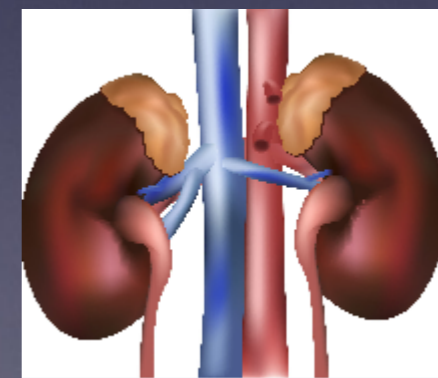
Constipation



TIPS



Diuretics  
Narcotics  
Benzodiazapines



Renal Function  
Electrolyte disturbances  
Dehydration



# Treatment

- Lactulose
- Antibiotics (Rifaximin, Flagyl)
- Diet

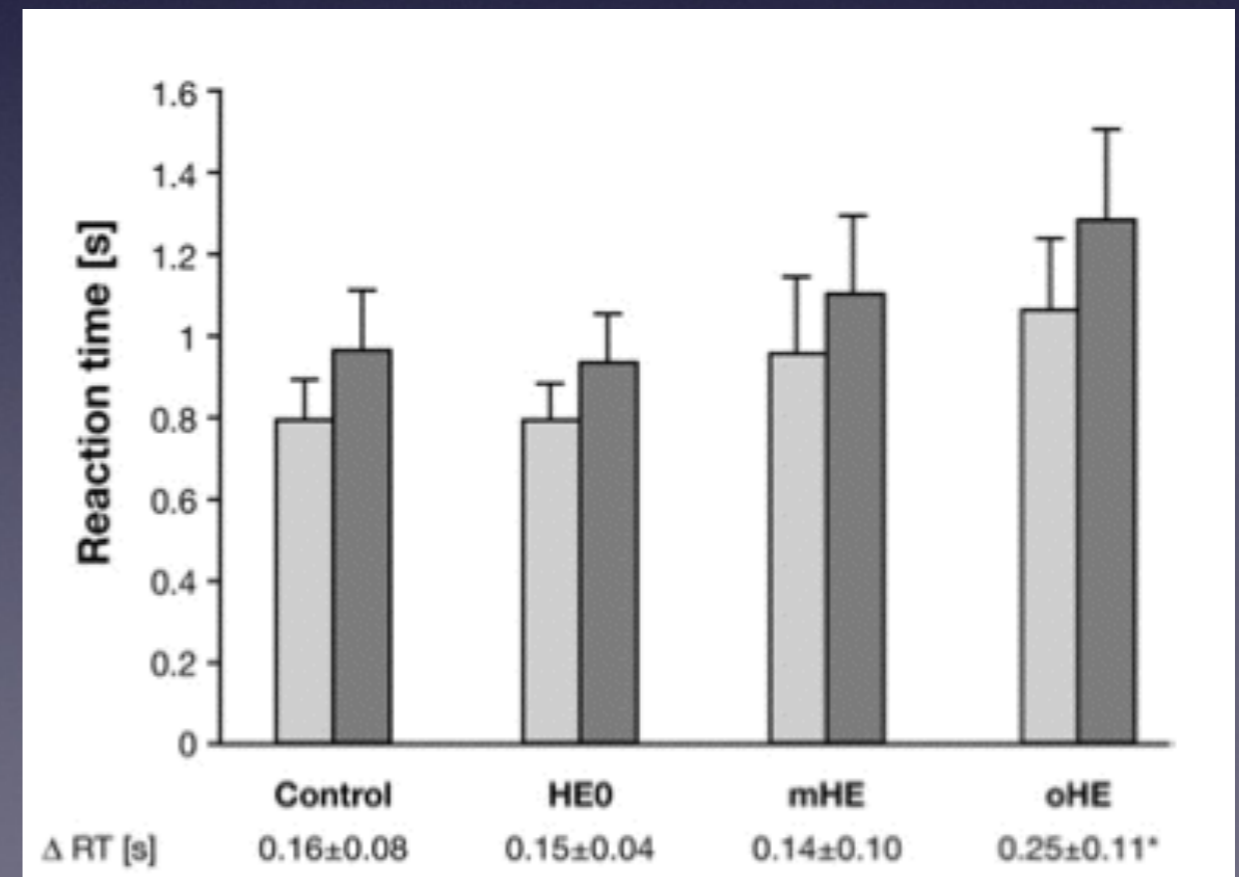
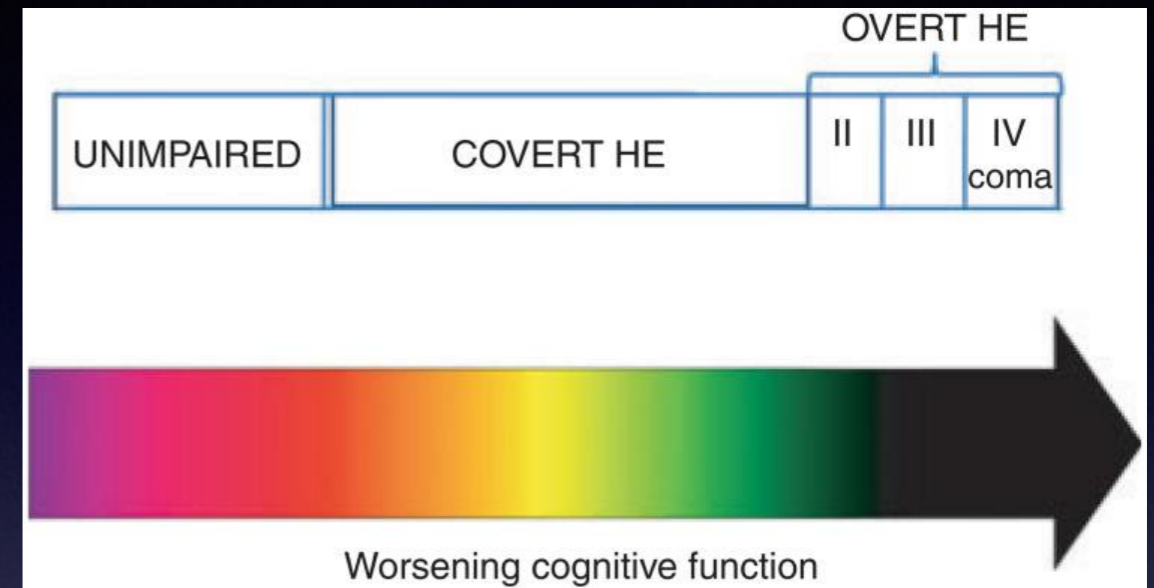


# Impact on Patient & Family

- Independence
  - Driving
  - Falls
  - ADLs
- Finances
  - Employment
  - Cost of care informal care giving
- Relationships
  - Care giver fatigue
  - Separating illness from personality

# Driving

- Seen in Covert and Overt HE
- Impaired simulator and on-road performance
- Increased accidents and traffic violations
- Impaired reaction time
- Limitations



# Falls

- Important risk in patients with underlying coagulopathy, osteoporosis, and higher operative risk
- 40% covert (minimal) reported falls (controls and no HE | 1.6 & 12.9%)
- Increased need for primary care services and hospitalizations for falls in MHE
- Falls independently affect health related QOL



# Employment, Finances & Caregiver Burden

Differences between patients with and without previous HE

Variable	Patients without previous HE (n = 58)	Patients with previous HE (n = 46)	P value
Age (years)	58.6 (6.3)	57.1 (7.0)	0.272
MELD score	10.7 (5.0)	15.5 (5.7)	<b>0.00001</b>
Diabetes mellitus	35%	37%	0.84
On chronic pain therapy (including narcotics and NSAIDs)	16%	15%	0.83
Depression requiring therapy	32%	14%	0.08
Anxiety requiring therapy	10%	10%	1.0
Currently working	81%	12.5%	<b>0.001</b>
Need to decrease hours	39%	71%	<b>0.017</b>
Worse off regarding job	47%	74%	<b>0.009</b>
Worse off regarding financial status	61%	85%	<b>0.019</b>
Median duration they would continue to live if all income stopped	1–2 months	7–12 months	<b>0.001</b>
Median longest period free of work	21 days	365 days	<b>0.035</b>
Debt from diagnosis	36%	54%	0.06
<i>Burden on caregivers</i>			
Zarit burden interview	11.5 (8.4)	16 (9)	<b>0.016</b>
Total perceived caregiver burden	65 (21.8)	75.4 (19.2)	<b>0.015</b>
Impact on finances	9.3 (3.3)	10.6 (4.1)	0.112
Sense of abandonment	14.6 (7.2)	13.8 (3.3)	0.45
Impact on schedule	11.9 (7.0)	16.1 (6.2)	<b>0.005</b>
Impact on personal health	15.6 (4.1)	17.8 (3.7)	<b>0.006</b>
Sense of entrapment	13.4 (6.5)	17.3 (8.3)	<b>0.016</b>



# Nursing Interventions

- Observe for motor function, sleep pattern, and cognitive changes
- Consult family about changes in patient's baseline behaviour
- Maintain slow, calm environment, reducing distractions and multiple stimulus
- Monitor for unsafe behaviour and risk reduction needs
- Teach support network differences between personality and illness
- Monitor for infection, bleeding, other precipitants
- Stool charting for appropriate Lactulose titration

# Goals of Care

- Improving Quality of Life
- Maximizing cognitive function
- Reducing hospitalizations
- Preventing car accidents
- Preventing falls and other injuries

# Take Home Points

- Lactulose- titrate for 3 soft BM/day, patient & family education
- Independence-consider supports needed to help maintain safe environment (transportation, fall avoidance) while maximizing independence
- Caregiver-Don't forget the patient's informal network (education and support assessment)