Predictive models of liver disease prognosis

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Compensated cirrhosis

• Median survival without non-bleeding esophageal varices >12 years
• Those with non-bleeding esophageal varices
  • 3.4% vs 1% one mortality rate
Decompensated cirrhosis

• Development of ascites, hepatic encephalopathy, esophageal variceal bleeding, hepatopulmonary syndrome or hepatorenal syndrome.

• Worse outcomes than compensated patients

• **Two most used predictive models**
  • Child-Pugh classification (CP score)
  • MELD score
Predictors of mortality

**Decompensated patients**
- Median survival ≤ 6 months
- CP score – 12 or more
- MELD score - 21 or more

**After hospitalization for illness related to decompensated cirrhosis**
- Median survival ≤ 6 months
- CP score - 10 or more
- MELD score – 18 or more
Total Bilirubin: 0.3 mg/dL
Albumin: 4.4 g/dL
INR: 1.0
Ascites: Ascites (Medically Controlled)
Encephalopathy: Encephalopathy (Poorly Controlled)

Score: 8
Classification: B
Survival: One Year: 81.00% / Two Year: 57.00%
Child-Pugh classification

- **Variables used** – serum albumin, bilirubin, PT, ascites and hepatic encephalopathy

- **Score ranges from 5-15**
  - 5 or 6 = class A
  - 7 to 9 = class B
  - 10 to 15 = class C

- **One year survival rates**
  - Class A – 100%
  - Class B – 80%
  - Class C – 45%

- **Two-year survival rate**
  - Class A - 85%
  - Class B – 60%
  - Class C – 35%
CP calculator

- **Bilirubin**
  - <2 mg/dL (1 point)
  - 2-3 mg/dL (2 points)
  - >3 mg/dL (3 points)

- **Albumin**
  - >3.5 g/dL (1 point)
  - 2-3 g/dL (2 points)
  - <2.8 g/dL (3 points)

- **Prothrombin time**
  - INR <1.7 (1 point)
  - INR 1.7-2.3 (2 points)
  - INR >2.3 (3 points)

- **Encephalopathy**
  - None (1 point)
  - Grade 1: altered mood/confusion (2 points)
  - Grade 2: inappropriate behavior, impending stupor, somnolence (2 points)
  - Grade 3: markedly confused, stupor but arousable (3 points)
  - Grade 4: comatose/unresponsive (3 points)

- **Ascites**
  - Absent (1 point)
  - Slight (2 points)
  - Moderate (3 points)
CP score and surgery risk

• Mortality rates in patients undergoing abdominal surgery
• **1984 study** – Class A – 10%, Class B – 31% and Class C – 82%
• **2010 study** - Class A – 2%, Class B – 12% and Class C – 12%
  • Mostly laparoscopic surgeries
• **2011 study** - Class A – 10%, Class B – 17% and Class C – 63%
  • Intra abdominal or abdominal wall surgery
MELD and MELD Na

- Variables – creatinine, bilirubin, PT/INR, Na
- Score range: 6-40
- Uses:
  - Initially used to predict 3-month survival following TIPS
  - Best outcomes for those 14 or less and should Avoid in pts with MELD 24 or higher
- Primary use today
  - listing ranking for transplant
When to refer for transplant

• MELD reaches 15
• After first decompensation
• After first episode of SBP
• Development of HCC