# Prediction of nosocomial acute-on-chronic liver failure in patients with cirrhosis admitted to hospital with acute decompensation

Giacomo Zaccherini, Maurizio Baldassarre, Michele Bartoletti, Manuel Tufoni, Sonia Berardi, Mariarosa Tamè, Lucia Napoli, Antonio Siniscalchi, Angela Fabbri, Lorenzo Marconi, Agnese Antognoli, Giulia Iannone, Marco Domenicali, Pierluigi Viale, Franco Trevisani, Mauro Bernardi, Paolo Caraceni

Table of contents

**Table S1.** Competing risk analysis of predictors of in hospital mortality according to the Fine and

Gray method, considering liver transplant and hospital discharge as competing events, in patients

developing nosocomial acute-on-chronic liver failure (nACLF). Data are presented as sub-

distribution hazard ratio (sHR) and 95% confidence interval.

|  | sHR (95% CI) | *p* |
|---|---|---|
| **Demographics** | | |
| Age (years) | 1.01 (0.97-1.05) | 0.695 |
| Male sex | 1.07 (0.40-2.90) | 0.892 |
| **Etiology of cirrhosis** | | |
| Viral | 0.88 (0.32-2.39) | 0.796 |
| Alcohol | 1.35 (0.48-3.79) | 0.563 |
| NASH | 1.36 (0.17-10.76) | 0.768 |
| Mixed etiology | 0.58 (0.13-2.51) | 0.468 |
| Other | 1.29 (0.34-4.82) | 0.710 |
| **Clinical history** | | |
| No prior AD | 2.25 (0.85-6.00) | 0.104 |
| Active alcoholism | 0.95 (0.21-4.35) | 0.945 |
| **Biochemical and hemodynamic data** | | |
| Hemoglobin (g/dL) | 1.26 (0.97-1.63) | 0.082 |
| Leucocyte ($10^9$/L) | 1.06 (1.00-1.12) | 0.041 |

| | | |
|---|---|---|
| CRP (mg/dL) | 1.11 (1.04-1.18) | 0.001 |
| Platelets ($10^9$/L) | 1.00 (0.99-1.00) | 0.476 |
| Sodium (mmol/L) | 1.09 (1.00-1.20) | 0.053 |
| Bilirubin (mg/dL) | 1.02 (0.98-1.07) | 0.324 |
| Creatinine (mg/dL) | 0.88 (0.47-1.66) | 0.693 |
| Albumin (g/dL) | 0.95 (0.85-1.05) | 0.327 |
| INR | 2.20 (1.28-3.78) | 0.005 |
| MAP (mmHg) | 1.01 (0.96-1.06) | 0.804 |
| HR (bpm) | 1.02 (1.00-1.05) | 0.110 |

**Prognostic scores**

| | | |
|---|---|---|
| MELD | 1.09 (0.99-1.20) | 0.075 |
| MELD-Na | 1.10 (0.98-1.22) | 0.095 |
| CLIF-OF | 1.59 (1.16-2.18) | 0.004 |

**Clinical features**

| | | |
|---|---|---|
| Liver failure | 1.31 (0.48-3.58) | 0.604 |
| Renal failure | 0.99 (0.38-2.59) | 0.976 |
| Brain failure | 1.04 (0.33-3.26) | 0.950 |
| Coagulation failure | 2.30 (0.89-5.95) | 0.087 |
| Respiratory failure | 6.66 (2.59-17.16) | <0.001 |
| ACLF grade 1 | 0.11 (0.03-0.38) | 0.001 |
| ACLF grade 2 | 4.65 (1.75-12.35) | 0.002 |
| ACLF grade 3 | 3.01 (1.04-8.72) | 0.043 |

5    CRP: C-reactive protein; INR: international normalized ratio; MAP: mean arterial pressure; HR:

6    heart rate; MELD: model for end-stage liver disease; MELD-Na: MELD incorporating serum sodium;

7    CLIF-OF: Chronic Liver Failure Consortium Organ Failure score; ACLF: acute-on-chronic liver failure.

8

9

**Fig. S1.** Impact of risk factors for the development of nosocomial acute-on-chronic liver failure (nACLF) on 28- and 90-days mortality from admission in patients without ACLF at hospital admission. Data is presented as sub-distribution hazard ratio and 95% confidence interval according to the competing risk analysis in which liver transplant was considered as competing event.