Severe alcoholic hepatitis (AH) is a dynamic process with patients presenting at different phases of disease. Change in bilirubin over 7 days has been used as an indicator of prognosis and response to corticosteroid treatment in AH. However, clinical decisions are influenced by disease trajectory in the first few days of admission. We aimed to test the prognostic validity of bilirubin change within four days of admission prior to exposure to corticosteroid treatment.

Data collected from patients recruited to the STOPAH trial from three Scottish centres were analysed retrospectively. The gradient of the best fit line (m) was used to calculate change in bilirubin across the first four days (mBili4) and first seven days (mBili7) of admission for each patient. Bilirubin difference (Δ) from baseline was calculated from the average bilirubin of day three/four (ΔBili4) and day six/seven (ΔBili7) and compared to baseline bilirubin (bBili). Patients exposed to corticosteroids within these time periods were excluded from analysis. Area under the receiver operator curve (AUC) was performed for day 28 and day 90 survival.

A total of 155 patients had at least two datapoints across the four days, including a bBili and values at either day three or four. A total of 106 patients had at least three datapoints across seven days including a bBili and values at either day six or seven. bBili did not predict day 28 survival (AUC 0.53, p = 0.70), or day 90 survival (AUC 0.52, p = 0.74). mBili4 and ΔBili4 did not predict day 28 survival (AUC 0.57, p = 0.26; AUC 0.53, p = 0.69) or day 90 survival (AUC 0.46, p = 0.46; AUC 0.48, p = 0.67). mBili7 moderately predicted day 28 survival (AUC 0.67, p = 0.04) but not so ΔBili7 (AUC 0.66, p = 0.05). Neither mBili7 or ΔBili7 predicted day 90 survival (AUC 0.57, p = 0.27; AUC 0.57, p = 0.31).

Baseline bilirubin and changes in bilirubin within the first four days of admission were not predictive of day 28 and day 90 outcome. Only 7 days after admission did a change in bilirubin reflect subsequent outcome at day 28 but not at day 90. These results suggest that the trajectory of bilirubin in the first four days of admission with severe AH prior to corticosteroid treatment are not indicative of subsequent outcome. Alternative biomarkers of disease evolution are required if informed therapeutic decisions are to be made within this early stage of hospital admission.