Introduction: Transarterial chemoembolization (TACE) as a palliative treatment is the standard first-line treatment for patients with intermediate stage HCC. Previous retrospective studies have indicated that treatment outcomes in elderly patients are comparable with younger patients but there is no validated prognostic tool specifically for the elderly population undergoing loco-regional therapy. The aim of this study was to analyse the association between comorbidity and overall survival in elderly patients with HCC undergoing treatment with TACE.

Methods: A retrospective analysis of prospectively maintained database of all patients treated with TACE at the Liver Centre, Kings College Hospital, United Kingdom between 2005 and 2012 identified 431 patients. Baseline demographics, treatment and survival outcomes were analysed. Elderly cohort comprised patients over age of 75 at time of treatment. Comorbidity was assessed using the Charlson comorbidity index (CCI). All patients were assigned one point for each pre-determined comorbidity and were divided into two groups, those with a score of 4 or less and those with more than 4.

Results: Of the 431 patients, 53 were identified as elderly (>75 Years). Median age in the older cohort was 80 years and 75% were male. Differences in underlying liver disease between both cohorts included hepatitis C (older =28.0% vs. younger 15.2% p = 0.045), hepatitis B (3.8% vs. 20.4% p = 0.003), alcoholic liver disease (27.0% vs 17.0% NS), non alcoholic fatty liver disease (11.4% vs. 13.2% NS) and cryptogenic (24.5% vs. 5.3% P = <0.001). There were no differences in frequency of higher Child-Pugh scores within the older cohort compared to younger cohort (older CP A = 35,B = 18,C = 0 and younger CP A = 202, B = 174, C = 2). In all patients, most prevalent comorbidities were cardiovascular disease (N = 164 [39.9%]), type II diabetes mellitus (N = 148 [34.3%]) and hypertension (N = 99 [24.9%]), all of which were more frequent in over 75 (all p = <0.005). Kaplan Meier survival analysis showed median overall survival (OS) for all patients was 19.53 months (m) (CI = 16.29-22.78). There was significant survival difference between both cohorts (younger =22.56m [CI 19.1-25.9] vs. older =10.3m [CI 5.7-14.9] p = 0.001) 44.3% (N = 191) of all patients had a CCI of <4 and a median OS of 24.7m which was significantly longer than those with a CCI score of ≥ 4 (55.6%, N = 239) who had a median OS of 17.5m (95%CI 14.2-20.8) (P <0.005). There was significantly higher frequency of patients with CCI >4 in the over 75 group (53/53) compared to the younger group (186/378) (P = <0.001). Common toxicities for all patients included fatigue (90/431), deteriorating liver function (90/431), post procedure pyrexia (92/431) and pain (67/431). Fatigue was the only toxicity more prevalent in over 75 age group (36.5% vs 21.1% p = 0.013).

Conclusion: This study shows poorer OS in patients over the age of 75 treated with TACE. This may relate to higher prevalence of pre-treatment comorbidity in the elderly patients. With an aging population, careful pre-treatment assessment of patients including a comprehensive evaluation of comorbidities before treatment is important for HCC patients prior to TACE. Further prospective studies are needed in this population to understand the prognostic factors in this cohort and inform on optimal treatment strategies.