

Cardiac Allocation Score (CAS) as predictor of therapy failure after HU listing

Objectives: Decision making for HU listing or MCS implantation is crucial for prognosis with increasing HTx waiting time and superimposable indications for ESHF patients. We aimed to assess the prognostic accuracy of the CAS for the therapy failure after HU listing (death/delisted due to MCS-implantation, good- or bad condition).

Methods: 452 HTx candidates listed for HU status between 12/05 and 05/16 at our institution were analyzed. The CAS model was evaluated for predicting therapy failure as well as the clinical course of these patients, their baseline characteristics and also the 5-year survival was compared.

Results: Of the investigated n=452 patients, n=125 suffered from therapy failure (FAIL group) after a median time of 34 (15-69) days whereas n=320 (Primary HTx group) underwent HTx after a median time of 51 (26-90) days after initial HU listing. Therapy failure occurred because of death in n=18 patients (FAIL death group).The remaining patients in the FAIL group (n=107) were de-listed due to MCS-implantation in n=90, bad condition in n=10 and good condition in n=7 patients. Of those, n=48 underwent secondary HTx thereafter (FAIL secondary HTx group), whereas the remaining n=59 patients did not undergo HTx (FAIL destination group). An increasing CAS score was associated with a significantly reduced risk for therapy failure (OR 0.987, 95% CI 0.977-0.998, p=0.018).Further univariate predictors for therapy failure were age (OR 0.975, 95% CI 0.96-0.991, p=0.003), INTERMACS class (OR 0.16, 95% CI 0.10-0.27, p<0.001), pulmonary hypertension (OR 2.18, 95% CI 1.28-3.73, p<0.001), dialysis (OR 5.61, 95% CI 3.47-9.37, p<0.001) and infection (OR 5.45, 95% CI 3.47-8.56, p<0.001). In multivariate logistic regression including all above mentioned univariate predictors, CAS was not independently associated with therapy failure. Estimated 5-year survival was similar in the Primary HTx and FAIL secondary HTx groups (p=0.56), while survival was significantly impaired in the FAIL destination and FAIL death groups.

Conclusions: In HU-listed patients, the CAS was not independently associated with therapy failure. Half of the HU listed patients with therapy failure do not tolerate 5 weeks on the waiting list. Our results suggest that early bridging with MSC may yield similar mid-term results as primary HTx and therefore offers a feasible treatment option. An optimized selection algorithm using score systems and early decision making may improve results. Further prospective studies are needed to identify a patient cohort that would benefit from early MCS Implantation.