**A PREDICTIVE MODEL OF 30 DAYS DEATH IN ADMITTED PATIENTS BY ACUTE HEART FAILURE**

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*Objectives*: Patients with a hospital admission by acute heart failure (AHF) have a high mortality rate. The goal of this study was to develop a clinical prediction rule of 30 days mortality for patients with AHF.

*Methods*: Prospective cohort study performed in 7 hospitals. Preliminary analysis of 720 admitted patients with a diagnosis of AHF seeing at the emergency department (ED). Various parameters were collected at the ED, admission, discharge, and until 30 days afterwards. Patients reported outcomes measures (PROMs) were also collected at baseline fulfilling the Minnesota (specific AHF questionnaire), the Barthel index and the EuroQol-5D questionnaires. Statistical analysis: development of the predictive models using multivariate Cox and logistic regression adjusted by hospital in a derivation and validated in the validation sample. Main outcome was death at 30 days after the ED index visit.

*Results*: The final multilevel logistic regression model included as predictors, age, COPD, cardiorespiratory arrest, cognitive impairment and complications at the episode. A risk score from 0-39 points was created and 3 severity categories, minor (0-9), moderate (10-12) and severe (13-39), were created. Mortality rates at 30 days were 3.06%, 14.79% and 36.96% (p<0.0001), respectively. AUCs of the model in the derivation and validation samples were 0.90 (0.86 – 0.94) and 0.90 (0.86 – 0.94) respectively, including the hospital, while the Hosmer- Lemeshow test p values were 0.95 and 0.67. None of the PROMs entered in the prediction models. The same risk score replicates by Cox regression. The obtained AUCs were 0.73 (0.67-0.79) and 0.73 (0.67-0.79) in the derivation and validation samples, respectively, without the hospital. The inclusion of the hospital in both models increased considerably the AUCs.

*Conclusions*: This clinical prediction rule classifies AHF patients in severity categories to better address clinical decisions. Future analysis has to clarify the role of the hospital in the prediction.