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Early predictive factors of 30-days mortality in cardiogenic shock: An analysis of the FRENSHOCK multicenter prospective registry

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Background: Cardiogenic shock (CS) remains a severe but poorly understood pathology. Many predictive death scores have been previously described but have focused on ischemic CS and took into account data related to the management of these patients. Moreover in clinical practice, defining CS is not easy from the state of ‘‘pre-shock’’ to refractory shock. So, there is an urgent need for simple and objective criteria to assess the short-term CS mortality regardless of the initial etiology. Methods: FRENSHOCK (ClinicalTrials.gov: NCT02703038) was a multicentre, prospective observational survey realized from April to October 2016 in 48 centers in France. Patients were prospectively included regardless of the CS etiology if they met at least one criterion of (1) low cardiac output (systolic blood pressure (SBP) < 90mmHg and/or the need of amines to maintain SBP, or a low cardiac index < 2.2L/min/m2 on echocardiography or right heart catheterization; and (2) clinical, radiological, biological (NtproBNP or BNP), echocardiographical, or invasive hemodynamics overload signs; and (3) a clinical (oliguria, marbling, confusion) and/or biological hypoperfusion (lactates > 2mmol/L, hepatic failure, renal failure). We studied factors related to 30d mortality using Kaplan-Meier analyses and Cox proportional hazards modeling. Results: 772 patients were included (male 71.5%, age median 65.7 y +/-14.9). Non-ischemic CS were predominant (n= 491; 63.9%) although type 1 infarction was infrequent (n=134; 17.4%). Mortality at 30-days was 26% (n= 201). Non survivors were older, had more previous renal failure, marbles, and atrial fibrillation at admission. They had lower SBP and DBP. Diagnostic tests revealed higher arterial lactate – CRP – natriuretic peptides – kaliemia; and lower pH - prothrombin time – hemoglobin – eGFR but also LVEF. Multivariate analysis retained age (especially > 75y), low systolic blood pressure (especially < 90mmHg), high arterial lactate (especially > 4mmol/l), low eGFR (especially < 30ml/min/m²), low LVEF (especially < 30%) as significant predictors of 30-days mortality (figure). Ischemic etiology or type 1 infarction
were not predictive. Conclusion: Our multicentric and prospective design confirmed the heterogeneity of CS in terms of presentation and prognosis. Five simple, practical and easy to find signs were found significant predictors of short term mortality and could be useful in providing a more accurate and stratified definition of CS’s patients in order to tailor additional therapies.