Non-ischemic cardiogenic shock: relationship between inotropes, vasopressors and mortality in a monocentric retrospective study

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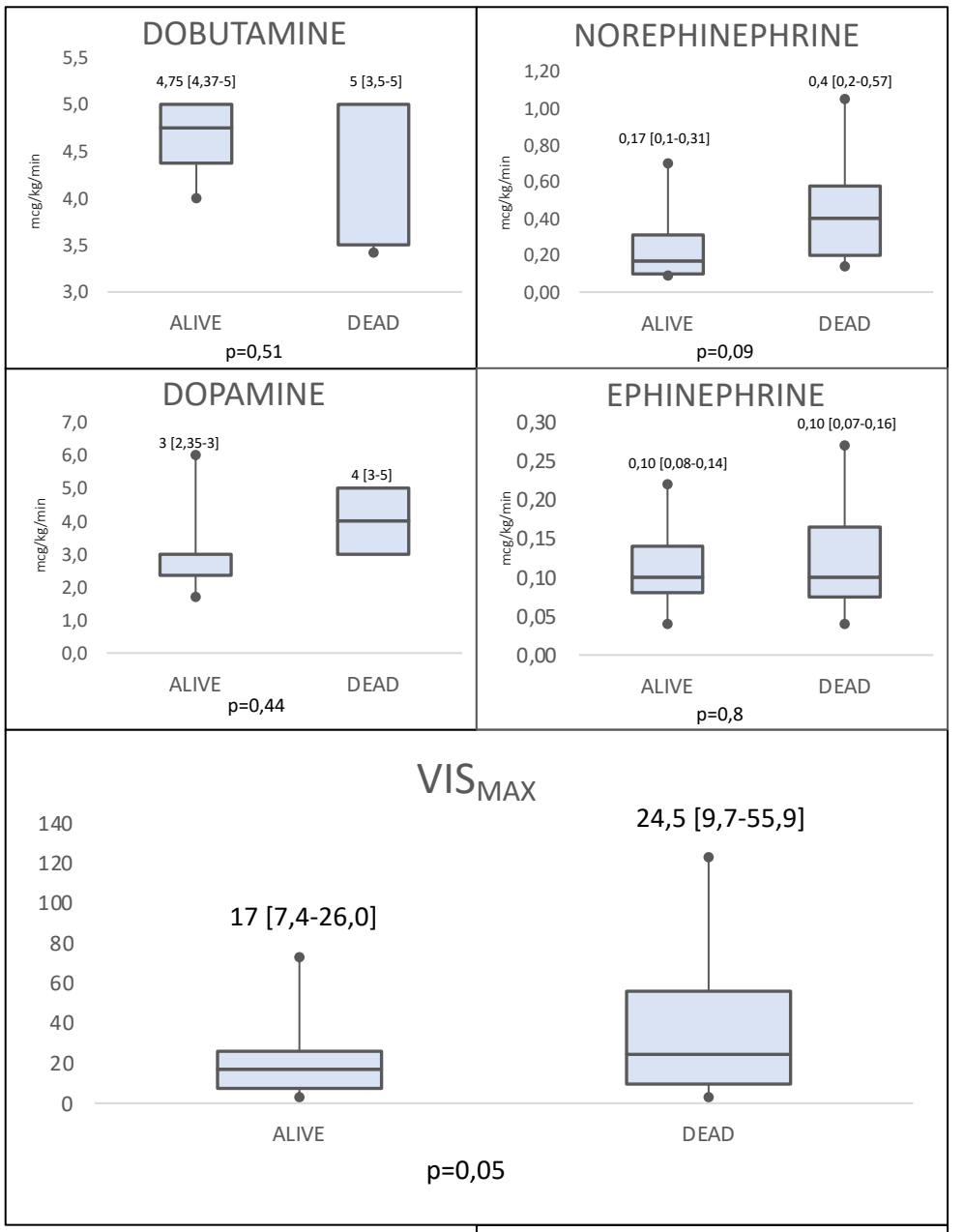
BACKGROUND Cardiogenic shock (CS) is a syndrome caused by severe impairment of myocardial performance leading to multiorgan failure and death in up to 50% of cases. Treatment bundles include inotropes and/or vasopressors; however, despite advanced therapeutic option the management of vasoactive drugs in CS are characterized by very low evidence[1,2].

PURPOSE We sought to describe the phenotype of non-ischemic cardiogenic shock, focusing on clinical, hemodynamic and pharmacological data in the first 24 hours, including Maximum Vasoactive Inotropic Score (VIS_{MAX}) and to investigate any effect of vasoactive drugs on mortality.

METHODS We include in our monocentric study, adult patients admitted to ICU for non-ischemic CS from January 2011 to December 2020.

RESULTS Sixty patients were evaluated, the median duration of ICU stay was 5 days. 45% patients died in ICU. No difference in clinical history data were found between dead and survivors. Vasoactive drugs were administered in 42 (70%) patients during the first 24 hours. Maximum dosages (mcg/kg/min) of inotropes and vasopressors were: epinephrine 0.10 [0,08-0,17], dobutamine 4.75 [3,5-5,0], norepinephrine 0.3 [0,15-0,48] and dopamine 3,56±1,43. VIS_{MAX} In the overall population was 20,0 [8,0-38,0]. Despite not significant, we observed higher VIS_{MAX} in the first 24 hours in patients who died (24,5 [9,7-55,9] vs 17 [7,4-26,0] p=0,05). This could be due to difference, although not significant, in vasopressors and vasoplegic physiology rather than inotropic use (Figure 1). At logistic regression no effect of vasoactive drug and VIS_{MAX} on ICU mortality was found (p > 0.05 for all).



VIS score: *dopamine (mcg/kg/min) + dobutamine (mcg/kg/min) + 100 x epinephrine (mcg/kg/min) + 50 x levosimendan (mcg/kg/min) + 10 x anti-PD (mcg/kg/min) + 10000 x vasopressin (UI/kg/min) + 100 x norepinephrine (mcg/kg/min)*

CONCLUSIONS Adrenergic inotropes are reported to be related with increase mortality, although the dosages used in literature[3,4] are higher than those used in our population. In our cohort of ADHF-CS, catecholamines titrated at the lowest effective dose did not demonstrate any effect on mortality.

REFERENCES (1) Berg, D. D. et al. Epidemiology of Shock in Contemporary Cardiac Intensive Care Units. (2) McDonagh et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. (3) Levy B, et al. Epinephrine Versus Norepinephrine for Cardiogenic Shock After Acute Myocardial Infarction. (4) De Backer D et al. Comparison of dopamine and norepinephrine in the treatment of shock.

In relation to this presentation, there are no conflicts of interest