

Dopamine is associated with the worst outcome among inotropes used in acute heart failure: observations from the ESC-HF-LT registry

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On behalf of: on behalf of ESC-HF-LT registry investigators

Introduction: Intravenous (IV) inotropes and vasopressors are widely used in the initial treatment of acute heart failure (AHF). There is a continuing controversy about whether one agent is superior to the other. Our aim was to analyze current real-life use of inotropes and/or vasopressors, and their association with all-cause long-term mortality in a large AHF cohort.

Methods: The European Society of Cardiology Heart Failure Long – Term Registry (ESC-HF-LT) was conducted between 2011 and 2013 and included 12785 patients (pts) in 21 countries in Europe, Northern Africa and the Middle East. Median duration of follow-up was 381 [363; 457] days. 833 (6.5%) AHF pts who received IV inotropes and/or vasopressors were identified for the post-hoc analysis. Propensity score for inotrope and/or vasopressor treatment was estimated using 35 clinically relevant baseline variables. Matching was made 1:1 on inotropic medication versus no inotropic medication and derived 606 pts in each treatment group. Hazard ratio (HR) for all-cause long-term mortality was estimated.

Results: Mean age of pts was 67 (\pm 13) years and 33.4% were women. Mean systolic blood pressure at presentation was 112 (\pm 27) mmHg. 45.7% of pts treated with inotropes had signs of hypoperfusion and 19.0% presented with cardiogenic shock. The 3 most widely used inotropes were dobutamine (42.5%), dopamine (24.7%) and levosimendan (13.1%), although their use varied among different regions (table 1). Median duration of treatment was 36.0 hours (h) [23.0; 72.0] for dobutamine, 36.0h [20.0; 72.0] for dopamine and 24.0h [24.0; 24.0] for levosimendan. Adjusted HR confirmed a significant association between the use of dopamine and all-cause long-term mortality (1.628 [1.031-2.572]) in the matched cohort. By contrast, no such association was seen with patients receiving dobutamine or levosimendan (HR 1.055 [0.727-1.531] and 1.229 [0.618-2.445] respectively).

Conclusions: Most commonly used inotropes in AHF patient population were dobutamine, dopamine and levosimendan. Compared to other inotropes, the use of dopamine was associated with markedly higher all-cause long-term mortality.

Inotropes in different regions

IV inotrope	Eastern Europe (n=303)	North Africa and Middle East (n=148)	Northern and Western Europe (n=90)	Southern Europe (n=292)	All (n=833)
Dobutamine	40.6%	61.5%	53.3%	31.5%	42.5%
Dopamine	30.4%	23.6%	10.0%	24.0%	24.7%
Levosimendan	6.6%	0.0%	22.2%	23.6%	13.1%
Other	22.4%	14.9%	14.4%	20.9%	19.7%