

# DIURETIC RESISTANCE: A STRONG MORTALITY PREDICTOR IN ACUTE DECOMPENSATED HEART FAILURE ADMISSIONS.

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## Introduction and Aims

Despite diuretic treatment is not associated with a better prognosis in acute heart failure (AHF), loop diuretics are the mainstay of initial pharmacological treatment. Failure to loop diuretic response seems to be related with a worse outcome. We sought to describe and compare patient (P) features and outcome in AHF admissions who developed diuretic resistance (RDIUR) and to identify its predictors.

## Methods

A total of 728 consecutive P were hospitalized for AHF between July 2011 and November 2015 and included in the analysis. RDIUR was defined as failure to achieve a urine output  $\geq 1.5$  ml/kg/hr due to a pre-established protocol that included furosemide in an initial 40 mg-IV bolus, followed by a two hours 5 mg/hr-continuous infusion. Under failure to achieve the goal, furosemide dose was doubled for two additional hours. Failure to respond to this strategy was called "diuretic resistance".

## Results

RDIUR was observed in 71 P (9.8%). No differences were detected after analyzing sex, ventricular function or structural heart disease. These P were younger ( $69 \pm 15$  vs  $72 \pm 14$  years old;  $p = 0.03$ ), a greater history of CKD (53 vs 29%;  $p < 0.001$ ), greater Furosemide doses prior to admission (74 vs 49 mg/d;  $p < 0.001$ ). Severe hyponatremia on admission ( $< 125$  mEq/L) and new severe hyponatremia were more frequent in RDIUR (12.7 vs 4.3%;  $p < 0.005$  and 26 vs 9.6%;  $p = 0.02$  respectively). Clinical hypoperfusion and right sided AHF evidences were more frequent in RDIUR (27 vs 7.7 %;  $p < 0.001$  and 38.6 vs 24%;  $p = 0.01$ ), while pulmonary congestion was less frequent (34 vs 68%;  $p < 0.001$ ).

RDIUR was associated with in-hospital events, as worsening heart failure (WHF) (49 vs 13%;  $p < 0.001$ ), inotropic support (60 vs 13%;  $p < 0.001$ ) and longer hospitalizations ( $> 7$  days)(74 vs 35%;  $p < 0.001$ ).

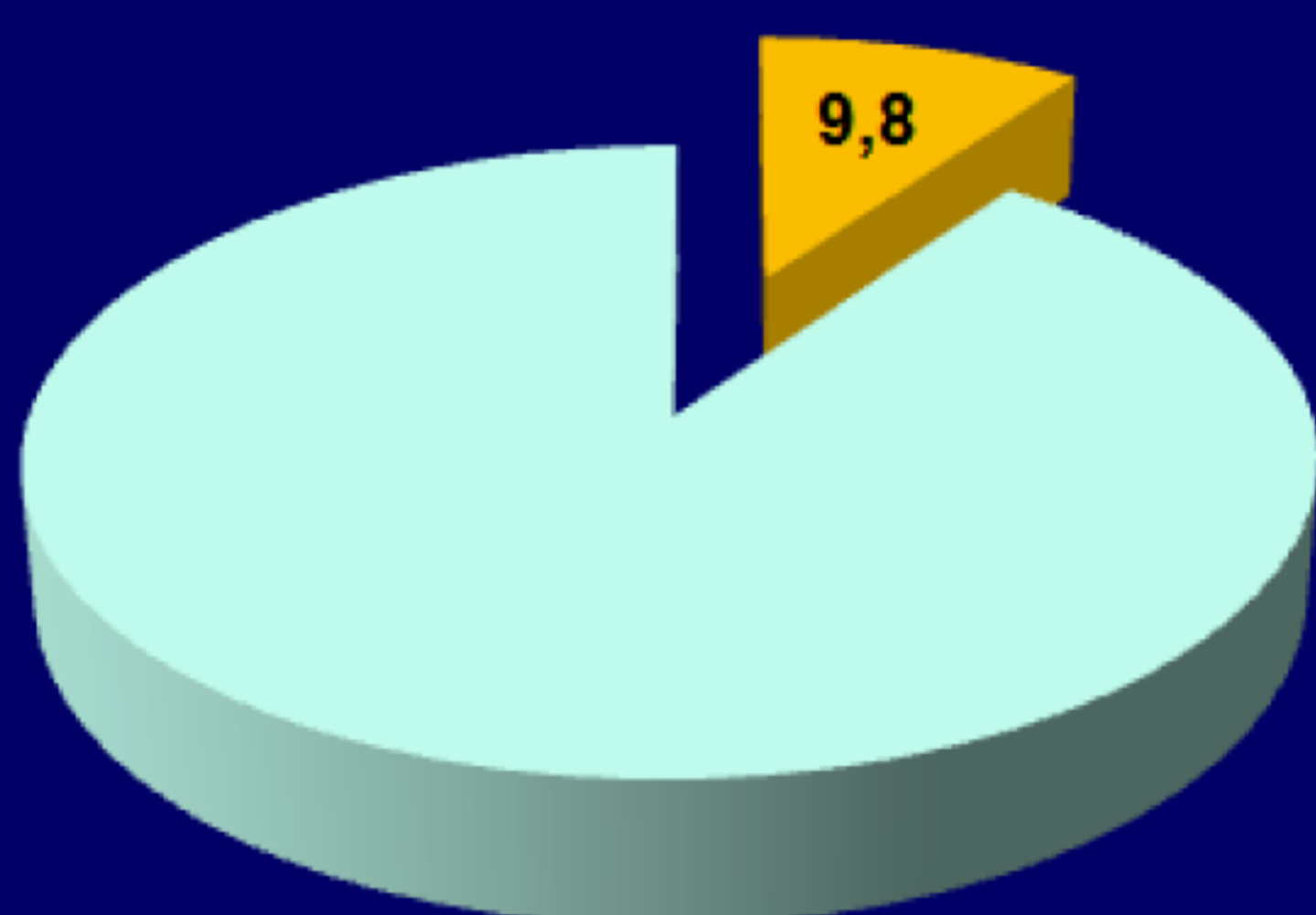
In-hospital mortality was 10.4%, higher in RDIUR (35.2 vs 7.9%; OR 6.3; CI95% 3.6-11;  $p < 0.001$ ). Six months all-cause mortality was 36.2%, higher in RDIUR too (63.4 vs 33.3%; OR 3.5; CI95% 2-5.8;  $p < 0.001$ ). No differences were detected after analysing readmission rates.

RDIUR (HR 3.1; IC95% 1.5-6;  $p = 0.003$ ), WHF (HR 3; IC95% 1.5-6;  $p = 0.002$ ) and low T3 concentrations on admission (HR 4.2; IC95% 1.4-12;  $p = 0.01$ ) were found as independent predictors for in-hospital mortality.

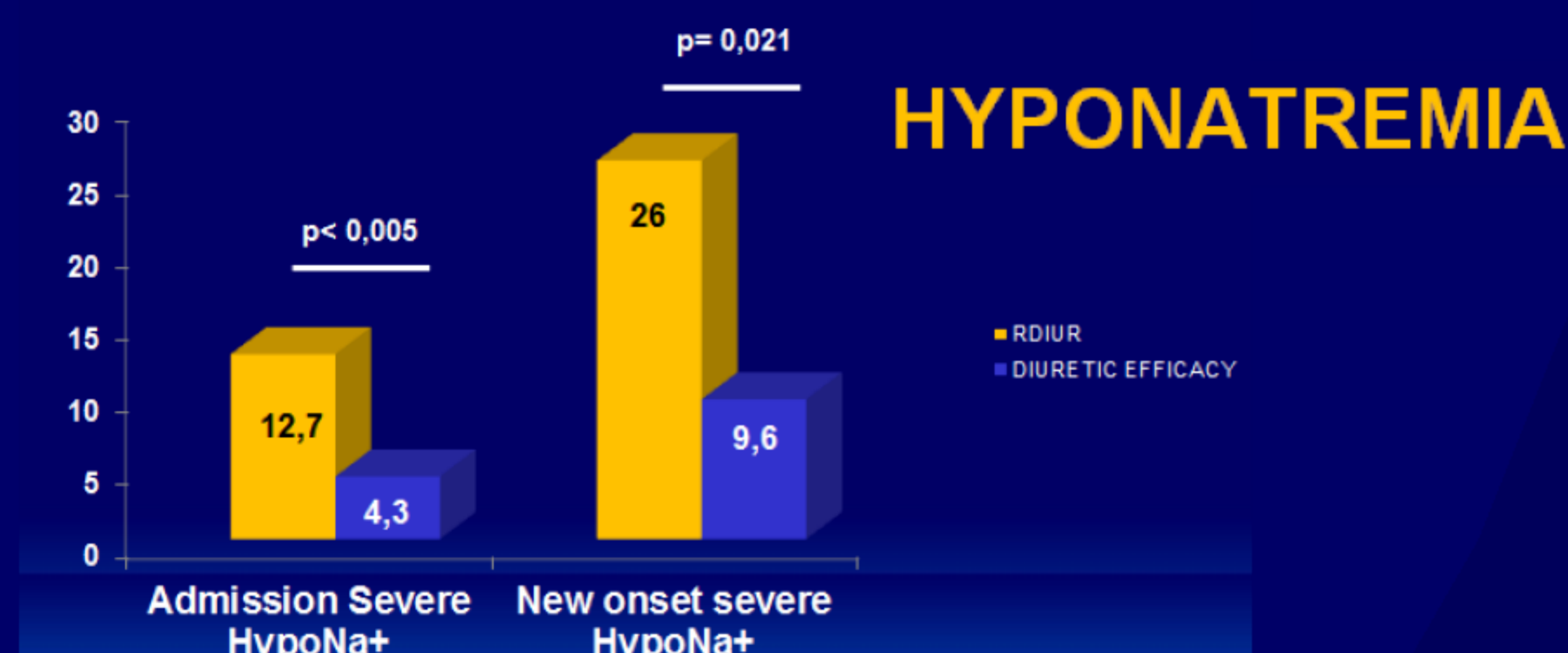
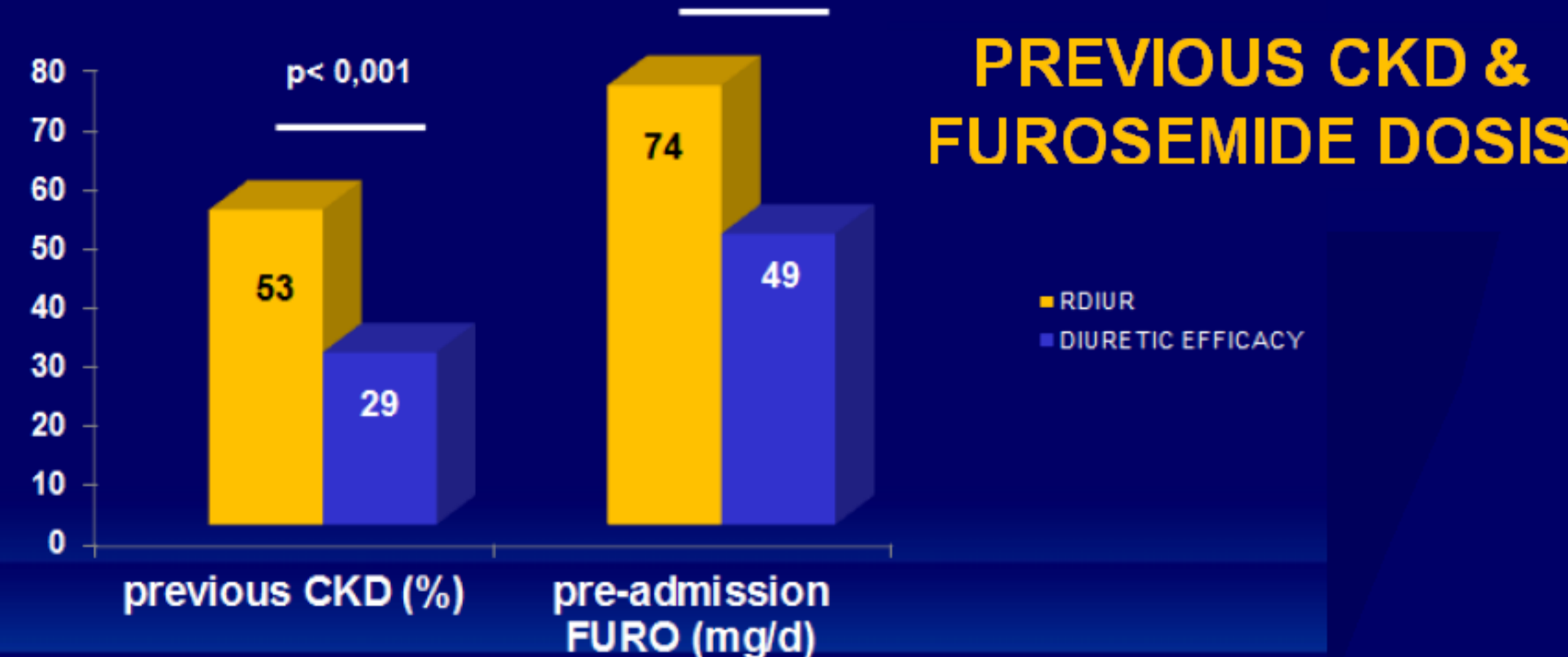
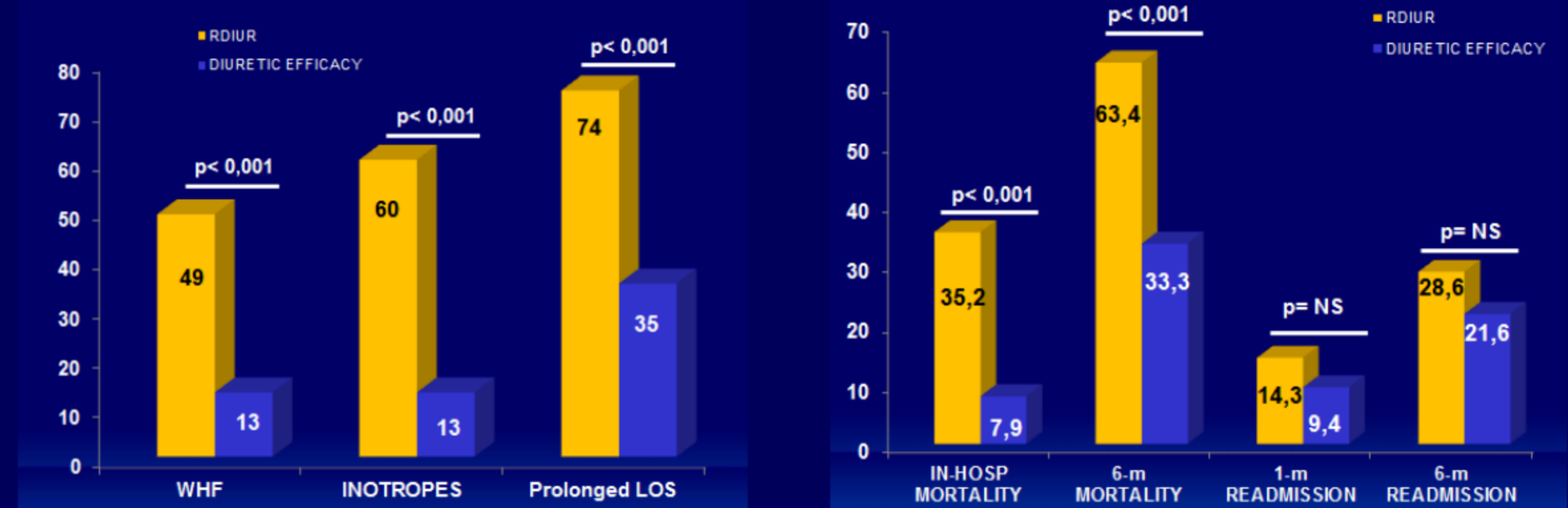
Multivariate analysis by multiple logistic regression revealed need for inotropic support (HR 3.9; IC95% 1.9-8;  $p < 0.001$ ), right sided heart failure evidences (HR 3.4; IC95% 1.7-6.6;  $p < 0.001$ ), previous CKD (HR 3.2; IC95% 1.6-6;  $p < 0.001$ ) and WHF (HR 3; IC95% 1.4-6;  $p = 0.003$ ) as independent predictors for RDIUR development.

728 consecutive pts

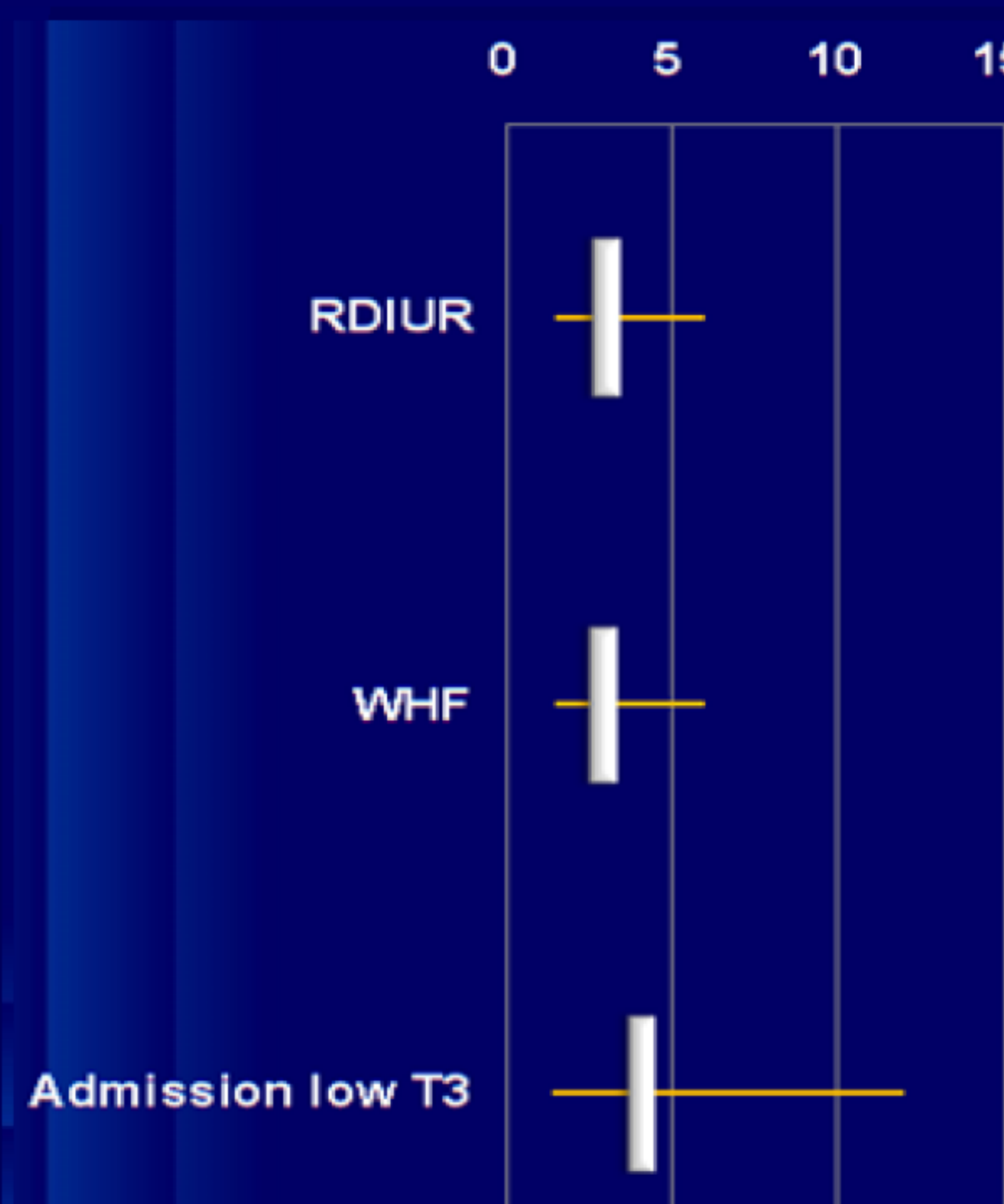
### DIURETIC RESISTANCE



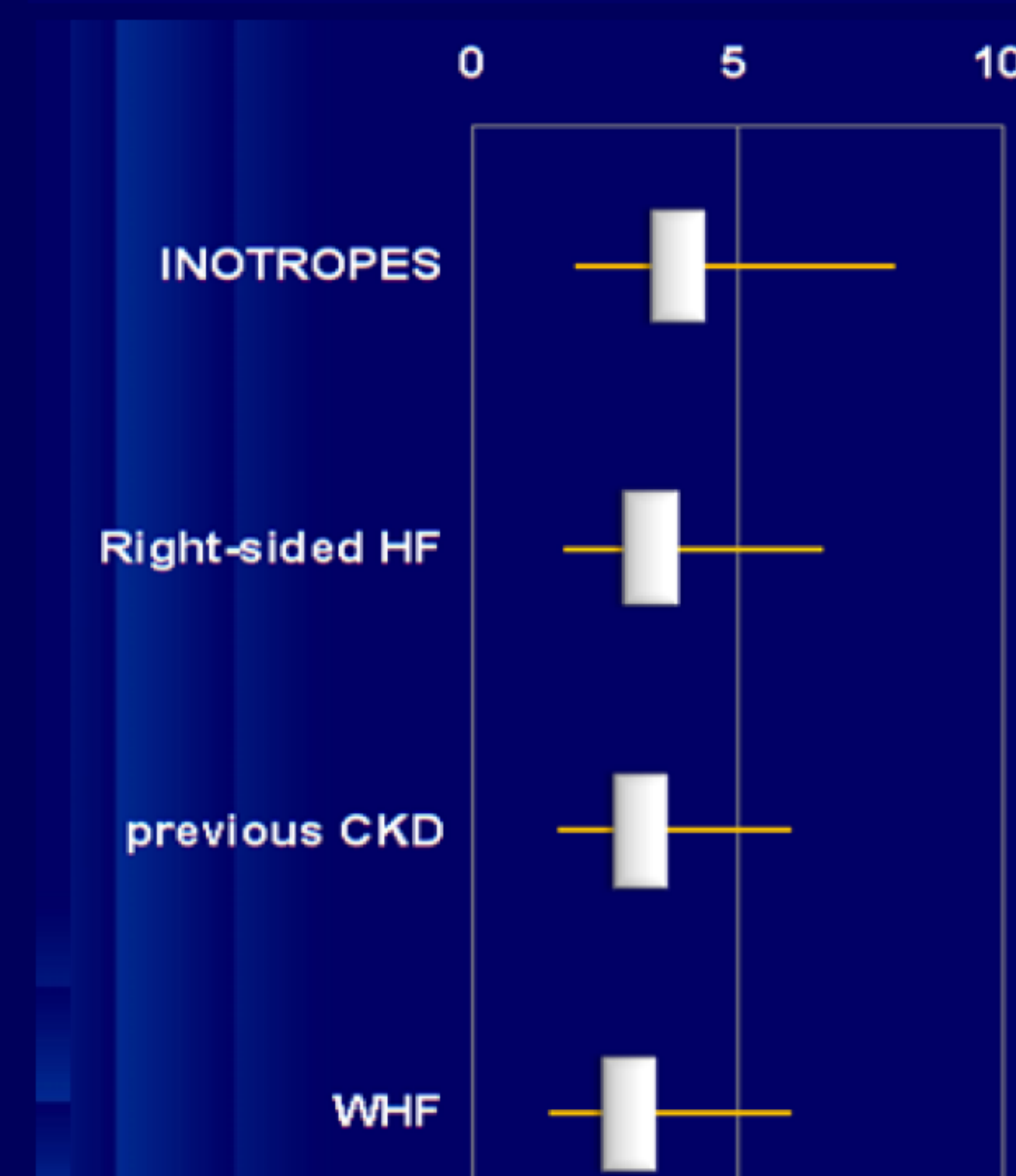
### HOSPITAL EVENTS



### IN-HOSPITAL MORTALITY PREDICTORS



### DIURETIC RESISTANCE PREDICTORS



## Conclusions and perspectives

RDIUR is a serious problem in P hospitalized for AHF. It is associated with a higher in-hospital event rate and longer admissions. Early detection might allow early therapy to reduce adverse outcome.

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Authors declare that they have no conflict of interest regarding the material discussed in the present poster