

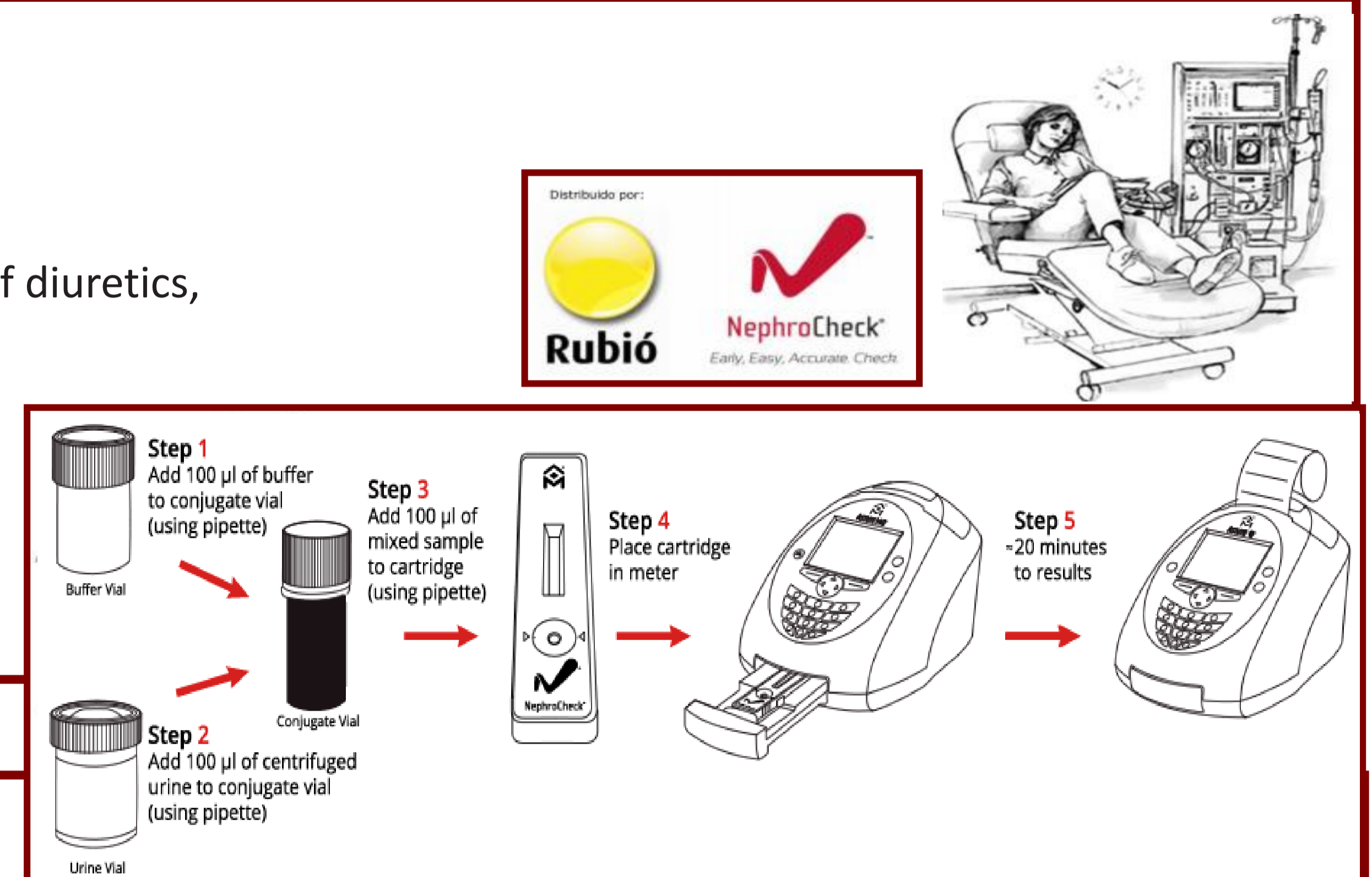
INTRODUCTION

- Acute kidney injury (AKI) is a frequent complication in hospitalized patients and particularly in critically ill patients after major surgery, heart disease or sepsis. Having early biomarkers and/or risk predictors could be helpful in early decision making in a more clear and precise way.
- The Nephrocheck[®] is a semiquantitative urine test. It provides in 20 min a risk value of AKI in the following 12-24 hours. It is based on measuring two biomarkers: *Tissue inhibitor of Metalloproteinases (TIMP-2)* e *Insulin-like growth factor binding protein-7 (IGFBP-7)* both involved in cell cycle arrest, detecting cellular stress, angiogenic factors and extracellular matrix remodeling prior to renal dysfunction with corresponding clinical manifestation.
- In literature this determination has been studied and validated in patients with cardiac surgery and sepsis AKI, being also defined cutoffs values based on risk sensitivity, specificity and predictive values.

OBJETIVE Analyse potential clinical utility of a single assessment by Nephrocheck in ICU patients with AKI.

METHODS

- Observational and retrospective study.
- 47 Acute kidney Injury patients (62 years old SD:14.3)
- Data compiled:
 - Clinical Data:** Diabetes, types of Acute Kidney Injury, AKI stage, urinary output (ml/kg/h), use of diuretics, requirement of continuous renal replacement therapy (CRRT), and number of it.
 - Serum creatinine:** at baseline, at the moment of AKI and at discharged of the hospital
 - Prognosis:** length of hospital stay and death (days)
- According to de Nephrocheck investigation test, results were divided in three stages:
 - Low risk:** <0.3
 - Intermediate risk:** 0.3-1.5
 - High risk:** >1.5
- Descriptive statistics, chi-square test and mean comparison by Anova (SPSS Statistic 20).



RESULTS

Comparative results of analyzed variables by Nephrocheck[®] investigation test ranges in patients with AKI are showed in Table 1 and Figure 1 and 2

	Low Risk <0.3 n=15	Intermediate Risk 0.3-1.5 n=16	High Risk >1.5 n=16	p
Qualitative variable				
Sex (Male/Female)	12/3	16/2	8/6	ns
Diabetes, n (%)	8 (53 %)	9 (56 %)	5 (31 %)	ns
Type of AKI				ns
Prerenal	13	13	12	
Intrinsic renal	2	3	2	
Obstructive	0	0	2	
AKI stage (I/II/III)	9/4/2	10/3/3	3/7/6	ns
Diuretic treatment at baseline, n(%)	14 (93%)	12 (75%)	14 (88%)	ns
Diuretic treatment at 48 h, n (%)	11 (73)	10 (63%)	12 (75%)	ns
Exitus, n (%)	2 (13%)	2 (13%)	6 (38)	ns
ICU origin, n(%)	13 (87%)	15 (94%)	13 (81%)	ns
Quantitative variable*				
Age (years)	63.7 (15)	60.6 (14.7)	61 (13.8)	ns
Creatinine (mg/dl)				ns
Baseline (previous AKI)	2.5 (2)	2.2 (1.5)	1.4 (0.9)	
Coincident with Nephrocheck	3.4 (2)	3.2 (1.4)	3.1 (2)	
At discharged	1.8 (1.4)	2.4 (1.8)	2.6 (2.4)	
CRRT, n (%)	7 (14,9)	11 (23,4)	11 (23,4)	ns
Nº days CRRT	2.7 (3.4)	1.9 (2.3)	5.0 (5.6)	ns
Length of hospital stay (days)	31.2 (39)	27.9 (21.6)	22.7 (17.6)	ns

*Data expressed as average (Standard deviation); ns: non significant; AKI: acute kidney injury; CRRT: contiuous renal replacement therapy; ICU: Intensive care unit

Figure 1. Urine output (ml/kg/h)

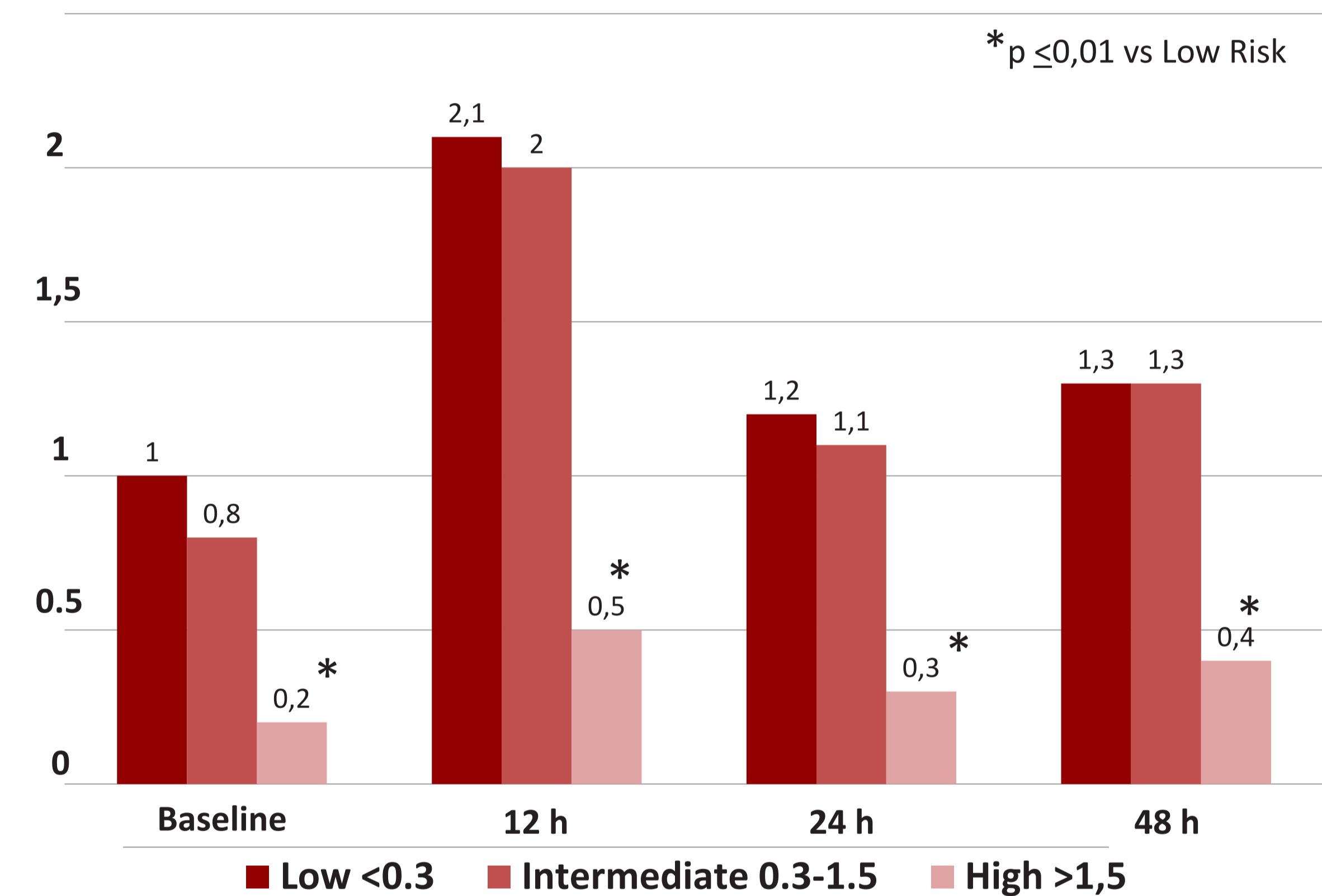
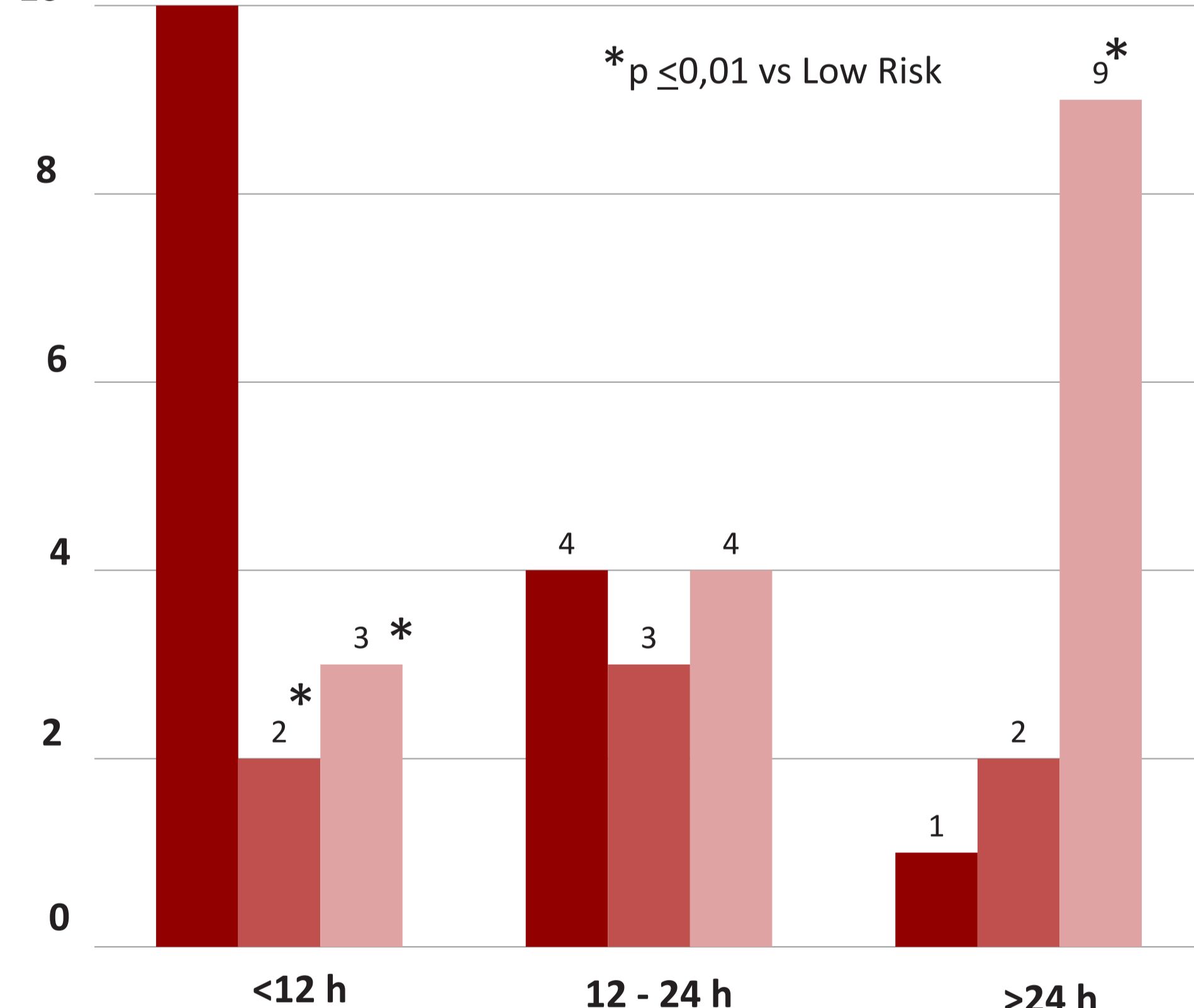


Figure 2. Diuresis recovery time



CONCLUSIONS

- The Nephrocheck[®] assesment not only predicts the level of risk but also informs about the intensity and persistence of oliguria: In our study basal Nephrocheck[®] values above 1.5 were significantly associated with persistent oliguria up to 48 hours.
- By confirming this results in more patients guaranteed the cut-off value, which could facilitate taking clinical decisions such as the early requirement of continuous renal replacement therapy which prevents fluid overload as an important prognostic factor of AKI in the critical patients.
- The immediacy of the result of Nephrocheck[®] result with a reasonable cost promotes the interest of validating these results in different populations of AKI as a potential tool in decision making to evaluate future requirement of continuous renal replacement therapy (CRRT).

REFERENCES

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