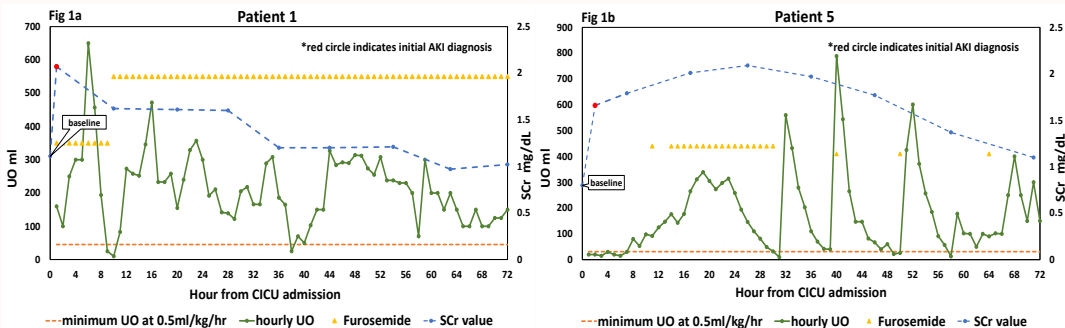


## INTRODUCTION

Patients admitted to the cardiac ICU for acute decompensated heart failure (ADHF) are at high risk for type I cardio-renal syndrome and increased morbidity and mortality<sup>1</sup>. We investigated the possible effect of real-time monitoring of urine flow trends on the individualized pharmacologic management, fluid balance (FB), and clinical outcomes of ADHF patients in the cardiac ICU.

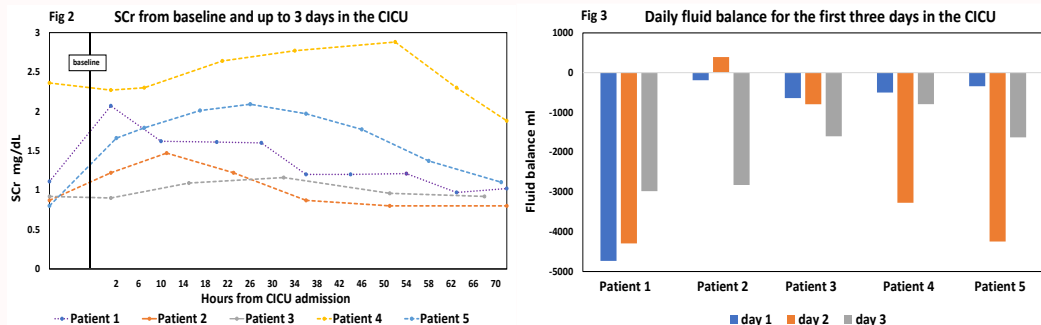
## MATERIAL & METHODS

We performed a case series of 5 catheterized patients admitted to the cardiac ICU with ADHF at the Sourasky Medical Center, Israel from July 2021 and January 2022. Their standard Foley catheter was connected to an electronic monitoring system (Clarity-RMS sensor kit) that continuously monitors urine output (UO) and displays UO trends on the consoles that are updated in real-time<sup>2</sup>. UO trends were utilized to detect dynamic changes in UO and guide an individualized approach for the pharmacologic management of each patient, based on blood pressure, hourly UO and total FB. Patient records were assessed for the development of AKI according to their serum creatinine (Scr), the need for hemodynamic support (pharmacological and mechanical), as well as the need and timing of invasive respiratory support.



## RESULTS

Of the 5 patients presented, 4 demonstrated worsening of renal function resulting in AKI (Fig 2). 3 patients presented with AKI Scr upon ICU admission. Changes in diuretic treatment following real-time UO trends contributed to early resolution of AKI and return to baseline Scr levels within 72 hours for all patients (Fig1a,1b) (Fig 2). All patients maintained euvolemic/negative daily and total FB (Fig 3).



## CONCLUSION & DISCUSSION

Early goal-directed care is necessary for the management of fluid balance and renal complications in ICU patients<sup>3,4</sup>. We demonstrated that real time monitoring of UO trends may be used for goal-directed care for the prevention of fluid overload and adverse outcomes in patients with ADHF.

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