Follow-up of perfusion index and inferior vena cava collapsibility

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Introduction: Acute renal failure (ARF), which may occur as a result of hypovolemia, is frequently diagnosed in emergency departments. It is essential to determine these patients' volume status and fluid requirement. The aim of this study was to examine the change in the inferior vena cava (IVC) collapsibility index and perfusion index (PI) in order to evaluate fluid deficit, volume status, and response to fluid therapy in patients with prerenal ARF who presented with signs of hypovolemia. Materials and methods: The study sample included 104 patients diagnosed with prerenal ARF due to hypovolemia in our emergency department. After obtaining informed consent from the patients, intravenous (IV) fluid therapy (20 cc/kg IV infusion of 0.9% sodium chloride solution for 30 min) was initiated. The PI and IVC collapsibility index were measured before and after the treatment. Results: Of the patients included in this study, 56.7% were women. The mean age was 76.06 years. Of the patients, 46.2% had a history of multiple diseases. Avoidant/restrictive food intake disorder was the most common complaint (28.8%). The mean PI of the patients was 2.20 at admission, which increased to 3.27 after treatment. The mean IVC collapsibility index was 38.39 at admission, which decreased to 29.36 after treatment. There was a significant and negative correlation between the PI and IVC collapsibility index of the patients. Conclusions: Early diagnosis and treatment of ARF in emergency departments are critical. Serial measurements of the IVC collapsibility index and PI are helpful in monitoring patients' response to fluid therapy.