Comparing Ultrafiltration and Intravenous Diuretics in Patients Hospitalized Because of Acute Decompensated Heart Failure

Ayşe Şeker Koçkara[1] , Mansur Kayataş[1], Can Hüzmeli[1], Ferhan Candan[1], Mehmet Birhan Yılmaz[2]

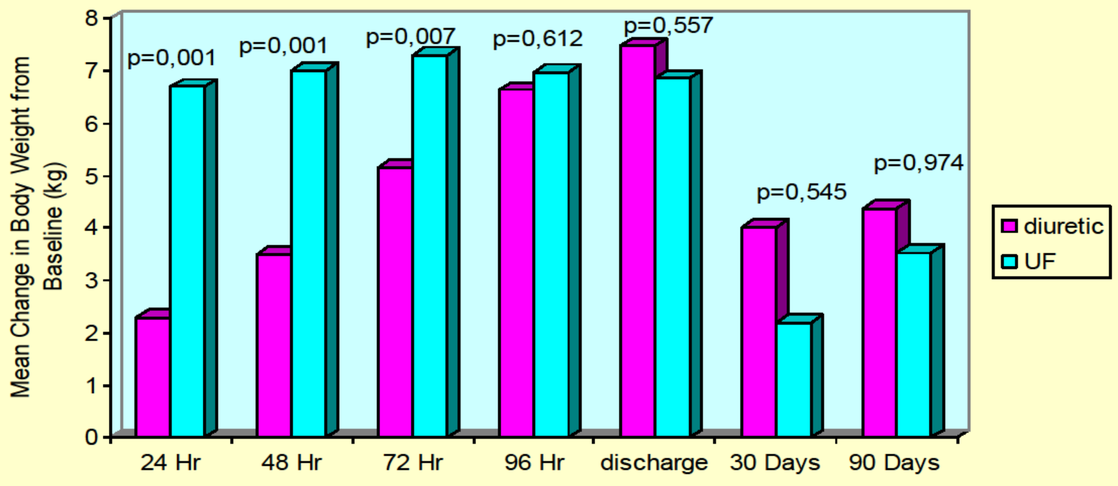
Cumhuriyet University Department of Nephrology[1] and Department of Cardiology[2] Sivas, TURKEY

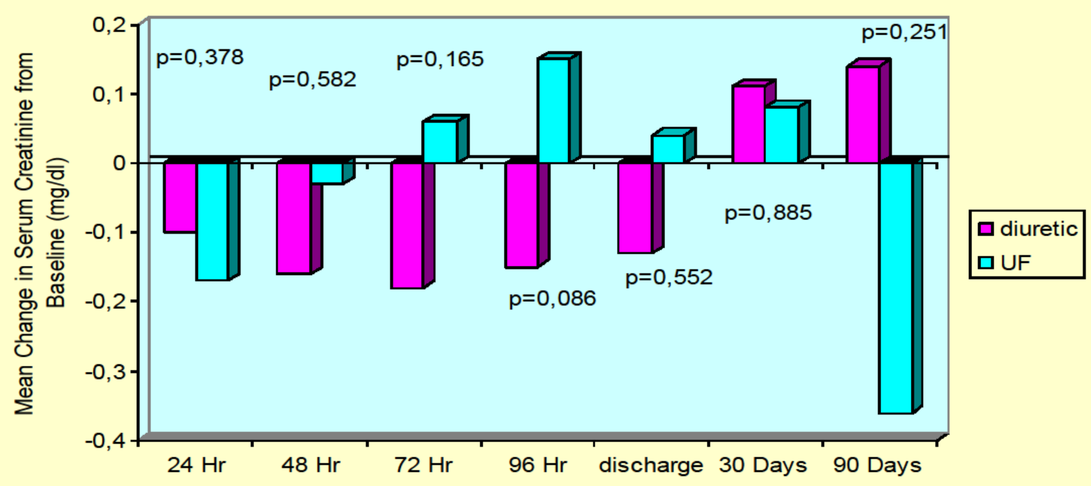
Objectives:

Acute Decompensated Heart Failure (ADHF) is the major reason for consulting a clinic in heart failure patients and every ADHF attack increases the mortality and morbidity of the patients. For years, loop diuretics have been used as a first step treatment in ADFH attacks. But, since diuretics have many side effects and, as shown in many studies, they are related to the high mortality and morbidity rate, new treatment methods have come into question. In recent years, ultrafiltration has been standing out as an alternative to diuretics. In our study we compared intravenous diuretic treatment with ultrafiltration in terms of efficiency and reliability in a patient group hospitalized because of ADHF in whom right ventricular dysfunction superpose over left ventricular systolic dysfunction (biventricular heart failure)

Methods:

30 patients, 10 in the ultrafiltration and 20 in the diuretics group, were included in our study. During the hospitalization, weight loss, total fluid loss, changes in kidney and heart functions and changes in biochemical parameters in two groups were compared. Patients were followed up for 3 months. The number of rehospitalizations within 3 months of the groups were recorded.





Results:

The values were measured when the patients were being discharged and in the ultrafiltration and diuretics groups weight loss was found as 6.86±2.3 kg and 7.47±5.5 kg, total fluid loss as 7.872±1.829 ml and 6.882±4.211 ml (p=0.052) and changes in serum creatinine levels as 0.04±0.5 mg/dl and -0.13±0.3 mg/dl (p=0.552) respectively. The difference wasn't found as statistically meaningful. The rates of achieving decongestion clinically were similar in two groups. Echocardiographic parameters, other biochemical parameters, serum renin observed to evaluate neurohormonal activation and changes in aldosterone levels didn't differ in two groups, either. As for the unwanted cases; the rate of hemodialysis usage was observed as 20 % in the ultrafiltration group and 5 % in the diuretic group, cardiac arrest and death rates were measured as 40 % in the ultrafiltration group and 10 % in the diuretic group. As the number of patients was small, the unwanted cases couldn't be statistically evaluated. Weight change of the patients in 1 and 3 month, and their creatinine and electrolyte levels were also found similar.

Conclusions:

In this study, it couldn't be proved that ultrafiltration and diuretic treatments have superiority over one another in terms of weight loss, total liquid loss, achieving decongestion clinically, changes in kidney and cardiac functions and changes in renin and aldosterone levels in patients with left and right heart failure. Although a statistical evaluation couldn't be done, the fact that hemodialysis, cardiac arrest and death were observed more in the ultrafiltration group leads us to think that ultrafiltration is not as reliable as diuretics and more comprehensive studies are required to decide that it could be used in routine practice in the treatment.

In general, one of the most criticized issue in all studies of ultrafiltration is lack of recommendations on ultrafiltration rate and termination criteria. Up to date, data failed to show superiority of ultrafiltration to diuretics. Due to invasive nature of ultrafiltration and complications such as hypotension and catheter-related complications besides risk of bleeding due to systemic anticoagulant use, current guidelines recommend ultrafiltration only in patients who are unresponsive to diuretic treatment. Nevertheless, based on the clinical condition of the patient both methods together may be a treatment choice. Applying intermittent ultrafiltration may have advantages such as lower use of diuretics and reduction of diuretic resistance.

References:

Adams KF Jr, Fonarrow GC,Emerman CL, Lejemtel TH, Costanzo MR,Abraham WT, Berkowitz RL, Galvao M, Horton DP; ADHERE Scientic Advisory Committee and Investigators.Characteristics and outcomes of patients hospitalized for heart failure in the United States Am Heart J.2005;149(2):209-216.

Ellison DH. Diuretic therapy and resistance in congestive heart failure. Cardiology 2001;96:132-43.

Bart BA, Goldsmith SR, Lee KL, et al. Ultrafiltration in decompensated heart failure with cardiorenal syndrome. N Engl J Med 2012;367:2296-304.

51ERA-EDTA

416--MP

M) Dialysis. M1) Extracorporeal dialysis: techniques and adequacy.

Ay&351;e &350;eker Kokara

DOI: 10.3252/pso.eu.51era.2014

Poster presented at: 51 ERA-EDTA CONGRESS AMSTERDAM THE NETHERLANDS MAY 31 JUNE 3 2014