Purpose: Heart failure (HF) with hypoalbuminemia is refractory to conventional therapy. We investigated whether tolvaptan, a potent aquaretic agent, might be of benefit in HF patients with hypoalbuminemia.
Methods: We prospectively enrolled 40 patients hospitalized for HF. Patients received conventional therapy. We subsequently added tolvaptan in the range of 3.75 mg to 15 mg daily and it was discontinued after improvement of HF symptoms. We compared clinical and laboratory data in HF patients with and without hypoalbuminemia (defined as serum albumin ≤3.0 g/dL).
Results: Tolvaptan was administered in 18 HF patients with hypoalbuminemia (Group A) and 22 HF patients without hypoalbuminemia (Group B). The mean serum albumin was 2.63 ± 0.27 g/L and 3.46 ± 0.25 g/L, respectively. The average urine output on tolvaptan increased significantly in both groups (1644.4 ± 797.6 mL/day to 3011.6 ± 1453.8 mL/day, P = 0.004; 1459 ± 612.7 mL/day to 2112.2 ± 724.5 mL/day, P = 0.008; respectively). In addition, we observed higher urine output on therapy in Group A than in Group B (P = 0.015). There was a moderate negative correlation between serum albumin and average urine output on tolvaptan (r = −0.42, P = 0.007).
Conclusions: Tolvaptan was effective in HF patients with and without hypoalbuminemia. Tolvaptan might become a promising treatment option for HF patients with hypoalbuminemia.

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Efficiency of torasemide in heart failure in patients with ischemic heart disease and chronic obstructive pulmonary disease

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The purpose of the study was to assess the impact of torasemide on the systemic and pulmonary hemodynamics, respiratory function, systolic and diastolic function of the left and right ventricle in chronic heart failure (CHF) in patients (pts) with ischemic heart disease (IHD) associated with chronic obstructive pulmonary disease (COPD).
Materials and methods: 64 pts (18 men and 46 women, mean age 61,9 ± 3,9 years) with NYHA II-III with IHD and COPD of II-III st. Group 1 consisted of 30 pts treated with combined therapy of CHF and torasemide (20 mg/day), the group 2 were administered furosemide (40 mg after 2 days) before the disappearance of edema syndrome and pulmonary congestion with subsequent transfer of pts on a maintenance dose of furosemide 20 mg after 2 days and torasemide - 10 mg/day. Control group consisted of 20 healthy subjects matched for age and sex. Before the beginning of the study, after 4 and 16 weeks all the patients obtained echocardiography, spirography and Holter ECG monitoring. The study was conducted at baseline, after 4 and 16 weeks.
Results: After 16 weeks of treatment, there was a significant improvement in clinical course of CHF according to the six-minute walk test in both groups. The improvement in systolic (Δ ejection fraction (EF) 8,2% in group 1 compared with 6,1% in group 2, p = 0,02) and diastolic function of the left ventricle (LV) (ΔE/A 9,3 and 6,2%, respectively, p = 0.016) was found. This corresponded to a decrease in LV end-diastolic volume and left atrium which was more pronounced in group 1 in all phases of observation. In addition, the right ventricle (RV) EF was significantly higher in group 1 compared with group 2 (ΔEF 7,2% against 4,1%, p = 0,016). More pronounced decrease in RV and systolic pulmonary artery pressure in group 1 compared with group 2 (Δ -10,3% against 8,1%, p = 0,03) was noted. Negative dynamics of forced expiratory volume in 1 second (FEV1) in both groups of pts wasn't observed. Research has shown that the long-term use of furosemide and torasemide has no negative effect on renal function in pts with CHF associated with IHD and COPD. There was a trend for an increase in glomerular filtration rate in pts treated with torasemide.
Thus, the 16-week therapy with torasemide in patients with CHF associated with IHD and COPD is accompanied by improvement of systolic and diastolic left ventricular function, reducing sizes of the left and right chambers of the heart, decrease in pulmonary artery pressure and has no effect on lung function, along with the safety and well tolerance.

P1575

Peritoneal ultrafiltration in end-stage chronic heart failure

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Background: Cardiorenal syndrome type 2 (CRS-2) is common in end-stage chronic heart failure (CHF). Peritoneal ultrafiltration (pUF) may entail clinical functional improvement and a reduction in hospitalizations.
Methods: 39 consecutive end-stage CHF patients with stable CRS-2 were initiated on ambulatory pUF after interdisciplinary cardiological/ nephrological evaluation and prospectively followed for one year. All-cause hospitalization was the primary endpoint. Secondary endpoints included mortality, treatment alteration and change in weight, NYHA functional class, or quality of life (QoL). Outcomes were compared both within the pUF cohort (365 prior to initiation) and to 39 matched CHF patients receiving standard medical treatment.
Results: Compared to pre-treatment, there was a trend to a reduction in one-year hospitalization days in the pUF group (P = 0.07). One-year mortality was 33% in the pUF group and 23% in the matched control cohort. PUF was stopped in 8 patients (18%) due to recurrent peritonitis (n = 3), insufficient ultrafiltration (n = 3), or cardiac recompensation (n = 1). As compared to standard medical treatment, pUF significantly improved volume overload (P <0.05), NYHA functional class (P <0.001), and mental health (P <0.05). Moreover, hospitalization days for all causes as well as cardiovascular hospitalization days were significantly reduced between periods in the pUF group (P <0.05 and P <0.001, respectively).
Conclusion: Peritoneal ultrafiltration is effective in improving the clinical condition of end-stage CHF patients suffering from CRS-2. Randomized controlled trials are needed to clarify the effects of pUF on hospitalization and mortality in these patients.

P1576

Hypertonic saline improves furosemide dose response curve in heart failure

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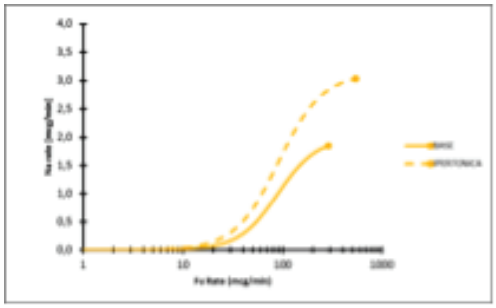
Aims: Loop diuretics remains a mainstay of heart failure (HF) therapy. The chief indicator to evaluate diuretic responsiveness is the urine production per unit dose of diuretic rather than the absolute urine output or diuretic dose. In many patients, sodium and water excretion plateau over time before adequate fluid elimination, a phenomenon termed as diuretic resistance, which may be overcome by the administration of hypertonic saline solution (HSS) plus high dose furosemide (Fur).
Method: Urine sample of 36 consecutive patients hospitalized for acute HF were collected at 30, 60, and 90 minutes and 3,4,5,6,8 and 24 hours after infusion of fur 125 mg (14 pts.), fur 250 mg (13 pts.) and fur 500 mg (9 pts.). Fur diluted in 150 ml of normal saline (initial) and hypertonic saline (after 24 hrs) was infused over 20 minutes. Diuresis, natriuresis, urinary osmolarity and Fur concentration were evaluated for each collected urine sample.
Results: HSS addition to Fur significantly increased urine output, natriuresis, urinary osmolarity and fur urine delivery in all patients and at all detected times. The total amount of furosemide (mcg) into urine was greater after i.v administration of HSS plus furosemide both for 125 mg (15.673,24 vs 12.026,88), 250 mg (36.252,24 vs 26.301,20) and for 500 mg(82.000,61 vs 52.677,78). In 31 patients (86%) curves fit with sigmoid function assigned automatically by computer program (ALLFIT) confirming that the addition of HSS to Furosemide have positive effects on diuresis and natriuresis.
Conclusion: This study demonstrates that addition of HSS to high dose furosemide improves furosemide dose response curves, total diuresis, and natriuresis in acute HF. These results serve as pathophysiological basis of an innovative approach to manage acute HF.



Patient PF: dose response curves

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Chronic intermittent renal replacement therapy in end-stage heart failure patients: a randomized study- one year results

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