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EVALUATION OF RESIDUAL RENAL FUNCTION DECLINE IN INCIDENT PATIENTS IN HEMODIALYSIS AND PERITONEAL DIALYSIS

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INTRODUCTION:
Residual renal function (RRF) in end-stage renal disease is clinically important as it contributes to adequacy of dialysis, quality of life and mortality. A number of complications observed on dialysis patients, such as overhydration (OH), hypertension, anemia, osteodystrophy, polyneuritis and malnutrition, are dependent on the amount of RRF. The rate of RRF decline has been observed to be faster among hemodialysis (HD) patients compared to that on peritoneal dialysis (DP) patients. The aim of this study was to compare the loss of RRF in incident patients on HD, using an individualized incremental dialysis prescription (IIDP), and on PD.

METHODS:
We analyzed the decline rates of RRF in 18 HD and 19 PD patients at a single center. They initiated a renal replacement therapy (time 0) during 2017 and had 1-year period of follow-up. At time 0 glomerular filtration rate (GFR) was determined using Cockcroft-Gault (CG), Modification of Diet in Renal Disease (MDRD) and Larsson equations. RRF was determined every 3 months using the normalized urea clearance for the volume of distribution of urea calculated by electric bio-impedance. Determinations were obtained at 0, 3, 6, 9 and 12 months after starting the technique, and differences in RRF assessed by residual urea clearence over time were analyzed.

RESULTS:
Most of our patients were male (n=23, 62,2%) and their median age was 62 (31-89) years with median body mass index (BMI) of 25,4 Kg/m2. The main etiology of chronic renal disease was unknown (n=14) and the second was chronic glomerulonephritis (n=9). Diabetes mellitus was more frequent in HD population. Of the HD patients, all started hemofiltration and 10 switched to hemodiafiltration as needed in an IIDP. Only 3 patients had tunneled central venous catheter, while the others had arteriovenous fistulas. Of the DP patients, all started in continuous peritoneal dialysis and 2 of them switched to continuous cycling PD for convenience. At the time they started dialysis GFR determination using CG was significantly higher in PD patients, compared with HD patients (10.75ml/min vs 8.32ml/min; P=0.038). There were no significant differences between groups, considering age, sex, time on HD, BMI, OH and GFR using MDRD or Larsson equations. After 1-year of follow up, there were significant differences in the weekly residual Krt/V (0,87 in DP vs 0, 55 in HD; P=0.043). In the remaining variables there were no significant differences. When we adjust these variables for technique and follow up, considering that the DP patients initially have higher values of GFR, there were no significant difference between the two techniques.

CONCLUSIONS:
RRF is an important variable and its preservation should not be forgotten in patients on HD. In this group of patients, after one year of follow up, there was no significant difference on RRF loss in incident HD and DP patients when we use an IIDP. However, our study had several limitations: small sample size, absence of a control group, lack of documentation of exposure to potentially harmful events or nephrotoxic drugs and a short follow-up period.