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PLASMAPHERESIS USING CASCADE FILTRATION (CF): CLINICAL INDICATIONS AND OUR EXPERIENCE

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Cascade Filtration (CF) consists of a double filter system. The separated plasma is pumped into a hollow fibers filter with a nominal cut-off of 600 kd, that retained bigger proteins in hollow fibers. The CF is effective in the cast nephropathy, in Waldenstrom's macroglobulinemia, in active cryoglobulinemia. CF is used successfully in Guillain-Barrè Syndrome (GBS), Myasthenia Gravis (MG), hypercholesterolemia, Focal Segmental Glomerulosclerosis (FSGS) and recently in the Age-related Macular Degeneration (AMD). We report our experience on 23 patients with different diseases. In seven out of ten cryoglobulinemic patients, we observed an improvement of renal function after six sessions of 1.5 plasma volume CF in two weeks. In 4 patients with GBS and in 2 patients with acute renal failure due to Multiple Myeloma, there was a complete recovery. Three patients with FSGS with massive proteinuria underwent to CF plasmapheresis. After six treatments, the nephrotic syndrome disappeared in two of them; in the third the proteinuria decreases from 11 gr/die to 4 gr/die. One patient with an acute renal failure due to rhabdomyolysis, recovered renal function after seven sessions. One patient with Systemic Lupus Erythematosus and severe arthralgia underwent to five CF sessions with remission of arthralgia. In two patients with Hypercholesterolemia we observed the reduction of cholesterol levels. In conclusion, we believe that the CF is an effective, safety and low costs technique in different diseases, with the advantages of a selective removal without infusion of exogenous fluids.

EFFECT OF CHANGE TO DRY DIALYSATE FORMULATION ON PRE-DIALYSIS BICARBONATE LEVELS

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PURPOSE: Dialysate concentrates that are shipped as dry acid concentrate and bicarbonate powder have been formulated to provide additional buffering capacity compared to otherwise equivalent liquid concentrates. A retrospective study was conducted to determine the effect of a change from liquid to dry concentrates on pre-dialysis serum bicarbonate levels. METHODS: Patients who switched from liquid to dry concentrate were identified based on dialysate prescriptions recorded in a centralized database. Baseline serum bicarbonate levels were determined in the 3 month(s) prior to the switch date. After a washout period of 60 days, follow-up serum bicarbonate levels were measured during a follow-up period of 3 months. Baseline and follow-up averages for each patient were determined from all available data in the 3 mo. period. A total of 4,793 study patients had at least one bicarbonate measurement in both the baseline and follow-up periods. Study patients had a mean of 2.8 baseline values and 2.9 follow-up values. RESULTS: The mean +/- SD pre-dialysis serum bicarbonate value was 22.0 +/- 3.4 in the baseline period and 23.7+/- 3.3 in the follow-up period. At baseline, 15% of patients had a 3 month average bicarbonate level of less than 20 mEq/l and 0.9% of patients had a 3 month average bicarbonate level of greater than 30 mEq/l. In follow-up, 10% of patients had a 3 month average bicarbonate level of less than 20 mEq/l and 1.5% of patients had a 3 month average bicarbonate level of greater than 30 mEq/l. Thus, the change to dry bicarbonate dialysate formulation resulted in a one-third reduction in the prevalence of acidosis.

SUBTITUTION OF THE KIDNEY FUNCTION BY THE BOWEL IN AZOTEMIA

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Chronic Kidney Disease (CKD) affects more than 200 millions patients worldwide and is characterized by reduced kidney function (50 to 85%) which results in elevated blood levels of uremic metabolites. The increased concentration of uremic metabolites circulating in blood promotes a passive diffusion across the intestinal cell wall and thus permeates into the large bowel . Bacterial concentration in the large bowel ranges between 10^{11} to 10^{12} cfu per gram of colonic content. We strain of microbe consumes the surrogate uremic toxins – urea. *S. thermophilus* is a gram positive, urealytic rods indigenous to the intestinal track of humans and various animals. The specifically chosen strain in our *in-vitro* study resulted in one log loss from 10^9 cfu after passing through gastric and bile juices and showed the ability to proliferate and hydrolyze urea (100 to230mg/dL in 18hr). In the present study utilizing the Simulated Human Intestinal Microbial Ecosystem (SHIME), we investigated the ability of our strain (KB19) to consume mainly urea in an environment mimicking the CKD status in the bowel. Supplementation of 10^{11} cfu of freeze dried KB19 to the SHIME reactor showed a substantial amount of urea utilization in a complex microbial feed suspension. Significant decrease in urea and creatinine was observed in ascending and descending colon respectively from (6.9±0.48 to 4.6±0.83; 191.0±13.0 to 150±17.2 mg/dl, $p<0.01$) compared to high uremic period. developed an orally ingestible microbial formulation in which a specific