Q5: Dialysis: nutritional status

HYPERMAGNESEMIA IN CHRONIC DIALYSIS PATIENTS: RELATIONS TO DIALYSATE MAGNESIUM AND SERUM ALBUMIN CONCENTRATIONS

Hwang JC, Chen JA, Lin JR, Wang CT
Division of Nephrology, Chi Mei Foundation Hospital, Tainan, Taiwan, ROC

This study was to evaluate the difference of magnesium (Mg) concentration between hemodialysis (HD) and continuous ambulatory peritoneal dialysis (CAPD) patients since the Mg concentrations were different between HD (1.5mEq/L, Erica, NJ) and CAPD (0.5mEq/L, Baxter, IL) dialysates routinely used in our center. We also tried to evaluate the relationship between serum Mg and albumin (Alb) concentrations, and the effects of serum Mg concentration on the HD patients’ survival. Two hundred and ninety HD patients (156 males and 134 females, aged 56±13.3 years, diabetic nephropathy [DN]=34%) and 22 CAPD patients (9 males and 13 females, aged 48±6.12 years, DN=14%) were enrolled in the study. Serum magnesium was quantitatively determined by using a colorimetric assay.

One session of HD did not alter serum Mg concentration significantly (preHD posto HD=3.50±0.54/mg/dl vs. 3.56±0.50/mg/dl, p=0.07). In HD patients, patients with DN had lower Mg level than those were not (3.35±0.53mg/dL vs. 3.58±0.53mg/dL, p<0.001). The Mg concentration of HD patients was significantly higher than that of CAPD patients (HD CAPD = 3.50±0.54/mg/dl vs. 2.94±0.68/mg/dl, p<0.001), even after excluding DN patients’ data (HD:CAPD = 3.52±0.44/mg/dl vs. 3.01±0.69/mg/dl, p<0.001). Serum Mg concentration positively correlated with serum albumin in both HD (Mg=0.34 × Alb -2.16; r=0.29, p<0.001) and CAPD patients (Mg=0.53 × Alb +0.92; r=0.44, p=0.04). In HD patients, those with higher Mg levels (upper quartile, n=73, DN=27%) had higher serum Alb concentration (4.09±0.34 vs. 3.75±0.53, p<0.001) and better survival rate (p=0.025) than those with lower Mg level (lowest quartile, n=73, DN=49%).

HD patients had higher serum Mg concentration than CAPD patients in our center, supposed to be caused by higher HD dialysate Mg content. DN patients had lower serum Mg and Alb concentrations, may be due to less intake and poor nutrition. Since serum albumin level positively paralleled to serum Mg concentrations in both HD and CAPD patients, patients with higher Mg level, maybe due to better nutritional status, had less mortality rate. We concluded that dialysate Mg concentration and nutritional intake are two major determinants for uremic patients’ serum Mg concentration.

ADEQUACY AND NUTRITIONAL STATUS IN DIABETIC PATIENTS ON PERITONEAL DIALYSIS

N. Jovanovic, V. Nesci, M. Pecelj-Gec*
Institute of Urology and Nephrology, CCS, and Faculty of Medicine* Belgrade, Yugoslavia

Malnutrition is common in patients (pts) on continuous ambulatory peritoneal dialysis (CAPD) and its etiology is multifactorial. Adequacy and nutritional status are associated with outcome in dialysis pts. The aim of the study was to evaluate adequacy and nutritional status through common biochemical and anthropometric markers in a group of pts affected by diabetes mellitus type I or II (DM) at the beginning and after 6 months of CAPD treatment. We examined 8 diabetics and 25 pts affected by end-stage renal disease (ESRD) of other leading cause. We evaluated: Kt/V, weekly creatinine clearance (Cr, l/min), residual renal function (RRF, l/m2/week), normalized protein catabolic rate (nPCR, g/kg/day), hemoglobin (Hb, g/dl), total serum protein (TP, g/dl), serum albumin (SA, g/l), serum transferrin (mg/l), cholesterol (mmol/l), triceps skinfold thickness (TN), biceps skinfold thickness (BN), midarm muscle circumference (MAMC), percentage of body fat (%F), body weight, body mass index (BMI), subjective global assessment score (SGA).

Pts affected by DM started CAPD program with higher RRF, and they had higher Kt/V and Cr during the follow-up, in spite of lower nPCR, indicating a lower protein intake in these pts; differences were not statistically significant. Biochemistry was better in DM pts at the beginning, but TP and SA declined and they were lower in DM pts after 6 months of CAPD treatment; differences were not significant. Anthropometric parameters were higher in DM pts at the beginning; 6 months later they were the following:

<table>
<thead>
<tr>
<th></th>
<th>Diabetes mell.</th>
<th>Other cause of ESRD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN (mm)</td>
<td>17.3±6.9</td>
<td>9.6±4.0*</td>
</tr>
<tr>
<td>BN (mm)</td>
<td>8.7±2.6</td>
<td>5.8±2.4**</td>
</tr>
<tr>
<td>MAMC (cm)</td>
<td>21.9±2.0</td>
<td>21.0±3.3</td>
</tr>
<tr>
<td>%F</td>
<td>27.9±8.3</td>
<td>21.1±5.3*</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>25.8±5.6</td>
<td>23.5±4.1</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>68.2±9.6</td>
<td>66.3±11.8</td>
</tr>
</tbody>
</table>

*p<0.05; **p<0.001

SGA score was slightly higher in DM pts during the follow-up period. In conclusion: pts affected by DM performed adequate dialysis and they improved anthropometric parameters during the follow-up. CAPD is a satisfactory mode of therapy for ESRD pts affected by DM.

EFFECT OF DAILY FOOD INTAKE LEVEL ON THE NUTRITIONAL STATUS IN HEMODIALYIZED PATIENTS

V. Bellizzi, B.R. Di Iorio, V. Terracciano, R. Minutolo, C. Iodice, L. De Nicola, G. Conte
Chair of Nephrology, Second University of Naples and Lauria Hospital, Italy

In patients on chronic hemodialysis (HD), the daily level of nutrient intake can be variable. To evaluate the independent effect of daily protein-calorie level on the nutritional status, a one-year prospective study was carried out in HD patients (n=27) with no risk factor for malnutrition. Every 4 months, we evaluated the daily values of protein nitrogen appearance (PNA), protein and calorie intake from dietary diaries (DPI, DCI) and weight gain (WGd) for 7 consecutive days, and the biochemical and bioimpedance (BIA) markers of nutritional status. During the study, Kt/V was always > 1.2. The mean interdialytic PNA was 69% hemodialysis, 31% peritoneal dialysis (ESRD) patients (N=197) using single frequency analysis (50 kHz) to calculate the phase angle (PA) closely correlate with total body water (TBW), body cell mass (BCM) and fat free mass (FFM) content. We compared BIA values obtained in dialysis (ESRD) patients (N=197) using single frequency analysis (50 kHz) to those obtained in the general population (NHANES III) matched by age, sex, race and body mass index. Mean age was 57±6 years (34% female; 32% black; 69% hemodialysis, 31% peritoneal dialysis).

Relative to NHANES, ESRD patients have slightly increased R (%) and significantly lower (27%) Xc and PA values (p<0.001). ESRD patients have 11% greater extracellular (ECW) and 7% lower intracellular (ICW) water content than NHANES individuals. Results are shown below (1P<0.001):

<table>
<thead>
<tr>
<th>Group</th>
<th>ECW-L</th>
<th>BCM-Kg</th>
<th>FFM-Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Females</td>
<td>ESRD 20±3 15±2* 42±5*</td>
<td>NHANES 19±3 17±2 44±5</td>
<td></td>
</tr>
<tr>
<td>Black Males</td>
<td>ESRD 21±5* 30±7* 68±11*</td>
<td>NHANES 17±4 32±5 65±10</td>
<td></td>
</tr>
<tr>
<td>White Females</td>
<td>ESRD 20±3* 13±2 41±4*</td>
<td>NHANES 18±3 15±2 42±5</td>
<td></td>
</tr>
<tr>
<td>White Males</td>
<td>ESRD 20±4* 27±6 63±10*</td>
<td>NHANES 18±3 32±5 65±9</td>
<td></td>
</tr>
</tbody>
</table>

These results indicate that ESRD patients are in a state of overhydration and have lower BCM and FFM that the general (NHANES) population.
OVERWEIGHT ON DIALYSIS: ENVIRONMENTAL AND GENETIC FACTORS.


OVERWEIGHT ON DIALYSIS: ENVIRONMENTAL AND GENETIC FACTORS.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.

Rufino J M, Lorenzo V, Barrios Y, Salido E, Garcia S, Miquel R, de Bonis E, Maceira B, Hdez Marrero D, Torres A.
ESTIMATING EQUILIBRATED PROTEIN CATABOLIC RATE (ePCRn) FOR DIALYSIS (DD).
Casino "FG, Quintaliani G, Pastici F, Fagugli R, Lopez" T, Buoncristiani U.
U.O. Nefrologia e Dialisi - - Perugia - Materia"

Short (2-hour) Daily Dialysis (DD) is associated with a high post-dialysis rebound, and an equilibrated BUN (Ceq) should be used for computing both Kt/V (eKt/V) and PCRn (ePCRn). To avoid measuring Ceq, one could first estimate a single pool (sp) Kt/V from Daugirdas equation (Deq) and then eKt/V from Daugirdas-Schneiditz formula (Dseq). Equations exist that compute ePCRn from spKt/V, but only for thrice- or twice-weekly schedules. We devised an algorithm that could be particularly useful for DD: it combines Deq with Dseq and allows to estimate Ceq as follows: 1) it estimates spKt/V from Deq; 2) it estimates eKt/V from Dseq; 3) by iteration technique it finds a new value for the postdialysis BUN ( Ct) that yields eKtV=Deq. (i.e., it replaces Ct with Ceq in Deq). From an antropometric volume (V) and next pre-dialysis BUN it will be possible to compute ePCRn, with the standard formula of UKM. We tested the above algorithm by computing the estimated Ceq with BUN measured 30 min after dialysis (C30) from 14 patients on DD (2 ± 6), as well as the corresponding PCRn values (respectively, ePCRn (Ceq) and ePCRn (C30)). Since blood samples for C30 were obtained 2 min after the end of the session, the appropriate Dseq for “ven-eKt/V” was used. The more relevant results were (M±sd): Ceq = 32.7±11.9; C30 = 33.3 ± 12.7; difference = -0.6±3 mg/dl (P<0.05); ePCRn (Ceq)=1.2±0.41, ePCRn (C30)=1.17±0.4 difference=0.03±12 g/Kg/day (P<0.05). Other important results were: Rebound value ((C30-C0)/C0)*100: 15.7 ± 10.8 (%); spKt/V: 0.81±0.2; eKt/V(Ceq)=0.60±0.14; eKt/V(C30): 0.66±0.19; ePCRn: 1.36±0.44 g/Kg/day. In conclusion, the spKt/V is based on the well known formulae for spKt/V and eKt/V; it is quite simple (the iteration can be easily performed with Excel) and provides ePCRn values sufficiently accurate, at least for clinical uses.

ASSESSMENT OF ASCORBIC ACID (AA) INTAKE AND SERUM LEVEL IN DIALYSIS PATIENTS.
M Jankowska, M Lichodziejewska-Niemierko, A Debska-Slizien, M Mikołajewska, B Jakubowska, A Konarska, U.O. Nefrologia e Dialisi - - Perugia - Materia"

We studied 20 patients treated with continuous ambulatory peritoneal dialysis (CAPD) aged 8-20.7 (mean 14.2 ± 4.3) years: 9 girls and 11 boys. Daily excretion in dialysate (DEx) was normalized clearance (nCr, ml/day/1.73m2) and fractionated excretion (FEx) of total cholesterol (TC), HDL cholesterol (HDL-C), apolipoprotein (apoA), total protein (TP), albumin (A) and globulin (α, β, γ) were calculated in all patients based on measurements in serum and recorded dialysate sample from daily dialysate collection. Dialysate was condensed 70-230 times by ultraconcentration with Vivacon 70 filter. DEx values are shown in the table as mean values ± SD:

<table>
<thead>
<tr>
<th>TC</th>
<th>HDL-C</th>
<th>ApoA</th>
<th>TP</th>
<th>α1</th>
<th>α2</th>
<th>β</th>
<th>γ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/d</td>
<td>mg/d</td>
<td>g/d</td>
<td>g/d</td>
<td>g/d</td>
<td>g/d</td>
<td>g/d</td>
</tr>
<tr>
<td>33.48</td>
<td>15.39</td>
<td>58.4</td>
<td>3.8</td>
<td>2.44</td>
<td>0.26</td>
<td>0.37</td>
<td>0.42</td>
</tr>
<tr>
<td>±2</td>
<td>±9.1</td>
<td>±28.2</td>
<td>±19.8</td>
<td>±31</td>
<td>±0.16</td>
<td>±0.15</td>
<td>±0.28</td>
</tr>
</tbody>
</table>

A significant positive correlation was found between peritoneal excretion of HDL-C and apoA and the excretion of TP (r=0.51 and 0.36 respectively; p<0.05), A (r=0.56 and 0.70; p<0.05), α1 (r=0.5, and 0.81; p<0.05), α2 (r=0.66 and 0.97; p<0.05), β (r=0.6 and 0.59; p<0.05) and γ globulin (r=0.51 and 0.61; p<0.05). In addition, a significant positive correlation was found between daily loss of HDL-C and apoA in dialysate and nCr and FEx for TP, A, α1, α2, β and γ globulin. Serum HDL-C and TP were inversely correlated (r= -0.46, p<0.05)

Conclusion: Daily peritoneal loss of HDL-C and apoA is increased in patients with higher peritoneal protein loss.

BENEFITS OF HELICOBACTER PYLORI ERADICATION IN HEMODIALYSIS(HD) PATIENTS
B. Akman, F.N. Ozdemir, H. Micozkadioglu, B. Budak, M. Haberal
Baskent University Hospital, Dept. of Nephrology, Ankara, Turkey

In recent studies it was shown that HP infection may be responsible for the increase in acute phase response and alterations in lipid and hematosis patterns. We aimed to see the effect of helicobacter pylori eradication on lipid profile and acute phase response of HD patients in our center. In our study, we included 88 HD patients (50 male, 38 female; mean age 38.92±10.94 years; renal failure duration 67.32±65.06 months; HD duration 53.38±65.65 months) who were diagnosed as helicobacter pylori gastritis with clo test and /or biopsy. They were chlamydia pneumonia negative and nonsmokers. Most common renal failure etiology was glomerulonephritis. All the patients were evaluated before and after helicobacter pylori eradication treatment with amoxicillin, clarithromycin and omeprazole for 2 months. Alterations in CRP, sedimentation rate, ferritin, fibrinogen, total protein, albumin, total cholesterol, triglyceride, LDL, HDL, VLDL were evaluated. After eradication of helicobacter pylori infection, there was statistically significant decrease in CRP (15.73±14.26 to 10.85±16.27 mg/L, p<0.003), sedimentation rate (42.92±27.33 to 31.70±19.87 mm/hr, p<0.005), fibrinogen (341.26±116.43 to 329.73±202.14 mg/dl, p<0.03). Meanwhile HDL (38.68±9.33 to 45.76±10.38 mg/dl, p<0.001), total protein (6.82±0.59 to 7.14±0.56 g/dl, p<0.001) and albumin (3.74±0.39 to 3.96±0.40 g/dl, p<0.001) levels were significantly increased. There was no significant change in ferritin, total cholesterol, LDL, VLDL and triglyceride levels (p>0.05).

As a result our findings support the hypothesis that chronic infections may change lipid profile and acute phase response in a way that could increase the risk of cardiovascular disease due to atherosclerosis so we advise to screen and treat hemodialysis patients for helicobacter pylori infection because of its probable beneficial effects.

DIALYSIS: nutritional status

BENEFITS OF HELICOBACTER PYLORI ERADICATION IN HEMODIALYSIS(HD) PATIENTS
B. Akman, F.N. Ozdemir, H. Micozkadioglu, B. Budak, M. Haberal
Baskent University Hospital, Dept. of Nephrology, Ankara, Turkey

In recent studies it was shown that HP infection may be responsible for the increase in acute phase response and alterations in lipid and hematosis patterns. We aimed to see the effect of helicobacter pylori eradication on lipid profile and acute phase response of HD patients in our center. In our study, we included 88 HD patients (50 male, 38 female; mean age 38.92±10.94 years; renal failure duration 67.32±65.06 months; HD duration 53.38±65.65 months) who were diagnosed as helicobacter pylori gastritis with clo test and /or biopsy. They were chlamydia pneumonia negative and nonsmokers. Most common renal failure etiology was glomerulonephritis. All the patients were evaluated before and after helicobacter pylori eradication treatment with amoxicillin, clarithromycin and omeprazole for 2 months. Alterations in CRP, sedimentation rate, ferritin, fibrinogen, total protein, albumin, total cholesterol, triglyceride, LDL, HDL, VLDL were evaluated. After eradication of helicobacter pylori infection, there was statistically significant decrease in CRP (15.73±14.26 to 10.85±16.27 mg/L, p<0.003), sedimentation rate (42.92±27.33 to 31.70±19.87 mm/hr, p<0.005), fibrinogen (341.26±116.43 to 329.73±202.14 mg/dl, p<0.03). Meanwhile HDL (38.68±9.33 to 45.76±10.38 mg/dl, p<0.001), total protein (6.82±0.59 to 7.14±0.56 g/dl, p<0.001) and albumin (3.74±0.39 to 3.96±0.40 g/dl, p<0.001) levels were significantly increased. There was no significant change in ferritin, total cholesterol, LDL, VLDL and triglyceride levels (p>0.05).

As a result our findings support the hypothesis that chronic infections may change lipid profile and acute phase response in a way that could increase the risk of cardiovascular disease due to atherosclerosis so we advise to screen and treat hemodialysis patients for helicobacter pylori infection because of its probable beneficial effects.

Nephrology Dialysis Transplantation Vol. 16 n.6 2001 A145
DIALYSED HEMODIALYSIS (DD) CAN IMPROVE NUTRITIONAL STATUS.
Quintaliani G, CasinoF, Pastici F, Fagugli R, Buoncrisi U.
*U.O. Nefrologia e Dialisi, - Perugia - Matera*

Introduction: Caloric proteic malnutrition (CPM) is the main factors of morbidity and mortality in dialysis patients. Many efforts were made to improve nutritional status, including oral and parenteral supplements of nutrients. Aim of the work is to evaluate if a change of dialysis schedule, namely DD, is able to modify nutritional status of dialysis patients.

Material and Methods: We studied prospectively 13 patients before and after 6 months of DD (two hours for session, 6 days a week).

We evaluated nutritional status by biochemical indices (Total protein TP, Albumin Alb; Cholesterol Cho, White blood cells WBC, Hemoglobin Hb); and Bioimpedance (Body Cell Mass BCM, Total water TW, Extra Cellular water ECW, Phase Angle PA). Dialysis efficiency was evaluated by dpEKRc and the Proteic intake by PCR. Both formulas were specially designed for the purpose (Abst XXXVIII congress EDTA: Estimating equilibrated PCR for Daily Dialysis).

**Results**: Our data show a significantly increase of BCM, PA and decrease of ECW. Total protein and albumin raised but not significantly KT/V and PCR improved significantly in the period of study:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pre-DD</th>
<th>Post-DD</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP Kg</td>
<td>6,975</td>
<td>7,108</td>
<td>n.s.</td>
</tr>
<tr>
<td>Alb</td>
<td>4,008</td>
<td>4,183</td>
<td>n.s.</td>
</tr>
<tr>
<td>BCM %</td>
<td>29.116</td>
<td>31.049</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>ECW %</td>
<td>59.394</td>
<td>49.125</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>BCM Kg</td>
<td>15.628</td>
<td>16.395</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>PT</td>
<td>5.975</td>
<td>7.108</td>
<td>n.s.</td>
</tr>
<tr>
<td>TW %</td>
<td>58.346</td>
<td>54.705</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>PCR</td>
<td>1.115</td>
<td>1.453</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>dpEKRc</td>
<td>13.406</td>
<td>15.494</td>
<td>P&lt;0.01</td>
</tr>
</tbody>
</table>

**Conclusions:**
1) DD is able to increase nutritional status
2) Bioimpedance is able to detect early changes of nutritional status and body composition.
3) To obtain valuable date for DD it is necessary to assess PCR and KT/V with specially designed formulas
4) Anthropometry and biochemical parameters are not early markers of nutritional status change

ANTHROPOMETRIC AND BIOELECTRICAL IMPEDANCE MEASUREMENTS: TWO SENSITIVE METHODS FOR ESTIMATING THE EVOLUTION OF THE MALNUTRITION STATUS IN HEMODIALYSIS PATIENTS

G Passavanti, *E Fassianos, A Saracino, A Ramunni, IF Morrone, P Coratelli
Nephrology, *Foggia University and 2Bari University, Italy*

Protein-energy malnutrition, which has been estimated to range from 10 to 70% in hemodialysis patients (HDpts), is frequently associated with increased mortality. Thus, the monitoring of the undernutrition status can be useful in order to predict a risk of death. In 7 of 53 HDpts (2M and 5F, age: 60±21 yrs, length of time on dialysis: 74±46 months) with a body mass index <19 we studied the malnutrition course every three months, for a period of 18 months, using not only the common biochemical parameters such as serum albumin (A), transferrin (T), cholesterol (C) and total lymphocyte count (TLC) but also anthropometric indexes: triceps skinfold (TSF, mm), mid-arm circumference (MAC, cm), mid-arm muscle circumference (MAMC, cm), arm muscle area (AMA, cm²) and other indexes derived from the bioimpedance analysis: phase angle (PA, degrees), reactance (Xc, ohms) and the so-called distance (D) calculated by the formula: [PA x10]+Xc] / square root of 2. The biochemical data revealed during the study a reduction in serum A and C only at 18th month: p=0.03 (A) and p=0.04 (C), but not in serum T and in TLC. On the contrary, all the anthropometric and bioimpedance analysis data progressively reduced from the start to the end of the study with a significant difference already to 9th month (TSF: 6.9±1.8 vs 7.8±2.2, p=0.0099; MAC: 18.8±4.5 vs 20.1±4.4, p=0.006; MAMC: 17.3±3.6 vs 18.0±4.2, p=0.004; AMA: 24±11 vs 27±13, p=0.0001; Xc : 44±16 vs 51±16, p=0.002; PA : 4.1±0.9 vs 4.6±0.7, p=0.0008; D : 86±22 vs 97±21, p=0.001).

In conclusion the study suggests that the anthropometric and bioimpedance analysis investigation may be more useful than biochemical examination for monitoring the malnutritional status in HDpts.

A COMPARISON OF LEPTIN LEVELS, ANTHROPOMETRIC AND NUTRITIONAL STATUS IN HEMODIALYSIS AND CAPD PATIENTS

*Gazi University Hospital Nephrology Dept**Vacational Education Faculty Nutrition Education Dep. Ankara/Türkiye

The association between plasma leptin levels and malnutrition has recently been suggested in renal failure. We performed this study in a sample of patients with chronic renal failure (CRF) undergoing peritoneal dialysis (PD) (n=26) and hemodialysis (HD) (n=27) with the aim of analysing the impact of the different modes of therapy on serum leptin levels and correlations between leptin levels and anthropometric measurements, nutritional and biochemical parameters. Plasma leptin levels were higher in patients treated CAPD (median 17,28ng/ml) than in those HD (7,19ng/ml) (p<0.001). There was no significant difference bodymass index (BMI), multiple skinfold thickness measurements, fatty percentage of body weight and fat mass accounts between two groups. But there was significant correlation between all of these anthropometric measurements and leptin levels (p=0.0001). And also energy, protein and fat intake, serum albumin, prealbumin, total cholesterol, HDL, LDL levels didn’t correlate with serum leptin levels. But between VLDL and triglyseride and leptin levels there was significant correlation.

As conclusion the difference of leptin levels between PD and HD should be explained out of the nutritional factors. And leptin levels may be used as a good indicator as well as anthropometric measurements, serum albumin and prealbumin levels for nutritional status and appetite.