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EFFECT OF EPA ETHYL ESTER ON FATTY ACID PROFILE IN HEMODIALYSIS PATIENTS WITH LOW EPA/AA RATIO

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Background: Large amounts of n-3 polyunsaturated fatty acids are known to lower the risk of cardiovascular events (CVE). Serum eicosapentaenoic acid (EPA) / arachidonic acid (AA) ratio may potentially be a predictor of CVE which is the most common cause of death in hemodialysis (HD) patients. Therefore, we estimated the effect of EPA ethyl ester on fatty acid profile in HD patients.

Subjects & Methods: Fatty acid profile and high sensitivity CRP (hs-CRP) were measured in 131 patients receiving maintenance HD. Among these, 64 patients (F:M=25:39) with both low EPA/AA ratio (≦0.4) and negative CRP were enrolled in this randomized study (Group A, EPA administrated group, n=30; Group B, EPA non-administrated group, n=34). The mean age of the patients was 66.5 ± 11.9 years old and the duration of HD was 8.4 ± 7.9 years. The serum levels of EPA, AA, docosahexaenoic acid (DHA), and dihomogammalinolenic acid (DHL-A) were measured by gas chromatography (SRL, Tokyo, Japan).

Results: The mean levels of EPA/AA ratio, DHA/AA ratio, DHL-A, non HDL-C and GNRI (Geriatric Nutritional Risk Index) were 0.28 ± 0.13, 0.62 ± 0.15, 22.7 ± 8.4 μg/ml, 112.2 ± 31.0 mg/dl and 93.6 ± 5.5, respectively. After one month of treatment with EPA in group A, EPA/AA ratio was significantly increased (0.30 ± 0.15 vs. 0.95 ± 0.45, $p < 0.0001$) and DHL-A significantly decreased (22.7 ± 7.4 vs. 15.7 ± 6.8, $p = 0.0003$), but DHA/AA ratio, serum non HDL-C and phosphate levels did not change. EPA/AA ratio was significantly higher and DHL-A lower in group A compared with group B after one month of the start of study.

Conclusions: Medication of EPA for one month increases EPA/AA ratio, and decreases DHL-A level without the change of serum phosphate level in HD patients with low EPA/AA ratio.

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ASSOCIATION OF CALCIFEDIOL LEVELS WITH VERTEBRAL FRACTURES, VASCULAR CALCIFICATIONS AND MORTALITY.

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The best biomarker of Vitamin D status is calcifediol [25(OH)D]. We investigated the relationship between serum calcifediol levels and vertebral fractures (VF), vascular calcifications (VC) and mortality in hemodialysis patients. Within a multicenter, cross-sectional study in 18 hospital based dialysis centers in Italy, we included 387 hemodialysis patients (143 F, 37% ; 244 M, 63%), mean age 64 ± 14 (SD) years, median dialytic age 49 months, BMI 25 ± 4 Kg/m^2. We determined total 25(OH)D using the LIASON® 25 OH Vitamin D kit (DiaSorin Inc., Stillwater MN, USA). We evaluated VF with a computerized analysis of scanned L-L vertebral X-rays (T4 to L5). Reduction of > 20% of vertebral body height was considered a VF, while reductions between 15% and 20% were considered borderline fractures (BF). Fracture severity was estimated as mild, moderate or severe (reduction: 20–25%, 25–40% or >40%, respectively). VC assessments were also centralized. Witteman's method (Lancet, 1994) was used for blinded assessments in duplicate. VC were quantified by measuring the length of calcific deposits along the anterior and posterior wall of the aorta (mild 0.1-5 cm, moderate 5.1-10 cm and severe >10 cm). We also evaluated the presence or absence of calcifications of the iliac arteries in the same radiograph (mild 0.1-3 cm, moderate 3.1-5 cm and severe >5cm). Any differences in VC were resolved by consensus. Follow up was 2.7 ± 0.5 years.

Bone markers were: Ca 9.15 ± 0.68 mg/dl, P 4.8 ± 1.28 mg/dl, median ALP 83 U/L and median PTH 244 pg/ml. We found a median 25(OH)D level of 28.9 ng/ml. Nine (2.3%) patients had vitamin D deficiency (< 10 ng/ml), 198 (51.2%) patients had vitamin D insufficiency (between 10-29.9 ng/ml) and 180 (46.5%) patients had normal levels (>30 ng/ml). We found that 55% of patients had VF and 30.9% of patients had BF. Prevalence of VC was 80.6% (mild 20.1%, moderate 30.8%, severe 29.7%) in the aorta and 55,1% in the iliac arteries. Males had more VF than Females (60% versus 48%, P=0.019). No associations were found between VF and biochemical parameters including calcifediol levels (p=0.662), while we found an association between low calcifediol levels and a higher prevalence of severe aortic calcifications (36.8 *vs* 28.2, p=0.0044). Furthermore, we found a OR 1.85 (1.04-3.29 CI, p=0.0367) for Aortic Calcification in patients with calcifediol levels lower than the median value of 29 ng/ml. During follow-up (2.7 ± 0.5 years) mortality was of 19.9%. No association was found between mortality and calcifediol levels (p=0.5394). In conclusion, despite good control of bone and mineral metabolism parameters, hemodialysis patients showed high prevalence of VF and VC. Our study suggests that high calcifediol levels could be protective against progression of severe aortic calcification

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KETO-ANALOGUES IN PRE-DIALYSIS CHRONIC KIDNEY DISEASE PATIENTS: REVIEW OF OLD AND NEW DATA

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Recently revealed high prevalence of Chronic Kidney Disease (CKD) raises concerns all over the world; evidence based strategies to delay progression were set up. Dietary approach is largely mentioned, but strong evidence is lacking.

The reduced dietary protein intake has been reported for more than a century to improve uremic symptoms and even to postpone the initiation of renal replacement therapy (RRT); however, the nutritional intervention in uremia is still under debate.

Different dietary protein regimens have been proposed for the CKD patients: (1) conventional low protein diet (LPD), with 0.6 g/kg per day; (2) very low protein diet (0.3 g/kg per day) supplemented with essential amino acids or (3) very low protein diet (0.3 g/kg per day) supplemented with an isomolar mixture of essential amino acids and nitrogen-free keto-analogues (SVLPD).

Available data support SVLPD to be effective in ameliorating nitrogen waste products retention, acid-base and calcium-phosphorus metabolism disturbances and insulin-resistance and in delaying the RRT initiation, with no deleterious effect on the nutritional status in CKD patients.More recent studies report that SVLPD could also slow down the rate of decline in renal function, preserving the nutritional status and associating better outcome after the start of RRT.

The possible delay of RRT initiation through nutrition could have major impact on patients' quality of life. On the other hand, postponing RRT could have also a serious economic impact, particularly important in countries where the dialysis facilities still do not meet the needs. The nutritional intervention, particularly the SVLPD could be a new link in the RRT integrated care model.

However, a careful selection of motivated patients who could benefit from such a diet, close nutritional monitoring and dietary counseling are highly required.

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NUTRITIONAL STATUS AND INTAKE PATTERN IN A GROUP OF ESRD SPANISH PATIENTS

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Introduction: The nutritional status of the ESRD patients is a crucial issue in the disease progression, that's the reason why the patient nutritional education is so important.Our objective is to evaluate the change in the nutritional status in a group of ESRD patients after a personalized nutritional education program. Method Longitudinal case study of 103 patients who took part in a nutritional educational program over six months (personalized diet, education and oral supplementation).

Results: See below Table 1.