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THE ASSOCIATION OF NUTRITION WITH INTERDIALYTIC WEIGHT GAIN AND DEPRESSIVE DISORDER IN HEMODIALYSIS PATIENTS

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Malnutrition was reported to occur in 23–76% and known as an important predictor of increased mortality in maintenance hemodialysis (HD) patients. This study was performed to evaluate the association of nutrition with interdialytic weight gain (IDWG) and depression in HD patients. Sixty-five HD patients for at least 3 months were enrolled. We investigated malnutrition by OSND (Objective score of Nutrition on dialysis) score and depressive disorder by Montgomery depression rating scale and Hamilton depression rating scale. We compared the clinical and biochemical profiles according to the presence of malnutrition. Mean age of the patients was 55.7 ± 12.6 years and patients with diabetes accounted 55.4%. Mean duration of HD was 36.2 ± 32.0 (4–129) months. Depressive disorder was diagnosed in 21 (32.3%), Malnutrition (OSND score < 22) in 24 (36.9%) and large IDWG (> 1 kg/day) in 40 (61.5%) out of the 65 HD patients. Patients with malnutrition had lower incidence of large IDWG (45.8% vs 70.7%, $p=0.046$) and depression (19.5% vs 54.1%, $p=0.004$) than those without. BMI (21.2 ± 3.0 vs 23.4 ± 3.0 kg/m^2 ,$p=0.006$), TSF (triceps skin fold thickness, 8.8 ± 4.2 vs 15.0 ± 6.2 mm, $p < 0.001$), MAC (mid-arm circumference, 23.6 ± 2.7 vs 26.4 ± 3.0 cm, $p=0.001$), serum albumin (3.6 ± 0.3 vs 3.8 ± 0.2 g/dL, $p=0.029$) and total cholesterol (142.5 ± 29.2 vs 169.7 ± 31.2 mg/dL, $p=0.001$) were also lower in patients with malnutrition, compared to the patients without malnutrition. There was no difference in age, gender, diabetes and HD duration between the two groups. In multivariate analysis, Depressive disorder was an independent risk factor for malnutrition.

Fig. Multivariate analysis of risk factors for malnutrition in chronic HD patients ($n=65$) ($R^2= 0.285$). In conclusion, we suggest that the depressive disorder may be considered in HD patients at the time of the assessment of nutritional status in maintenance HD patients. In addition, it is hard to use large IDWG as an indicator of nutrition in maintenance HD patients.

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CORRELATION BETWEEN ARTERIAL BLOOD GAS ANALYSIS AND PERIPHERAL BLOOD GAS ANALYSIS IN ACID-BASE UNBALANCE STATE

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Acid-base unbalance is most common problem in severe ill patient, especially in condition of abnormal renal function state. Acid-base unbalances are respiratory acidosis, respiratory alkalosis, metabolic acidosis, and metabolic alkalosis. Metabolic acidosis is frequently appeared in clinical state. Arterial blood gas analysis is considered as a basic test to the intensive care unit patient and emergency state. Recently some researches were done, comparing with arterial blood gas analysis and venous blood gas analysis. Because of venous blood sampling is safer than arterial blood gas analysis, and beside not so different among them for detecting pH, pCO_2, HCO3, except pO_2 measuring. This research was done in emergency room, and for explaining no different between arterial blood gas analysis and peripheral blood gas analysis result in acid-base unbalance state patient. Especially in kidney functions decreased state. : The study was done from March, 2010 to January, 2011. The object was 89 peoples who came to emergency room for treating internal medicine problem. (Women 53, average age: 66.7 ± 12.1) Then compare between arterial blood gas analysis and peripheral blood gas analysis. Result: The mean arterial minus venous difference for pH, pCO_2, and bicarbonate was -0.0170, 2.6528, and 0.6124. Bland-Altman plot was done for predicting agreement of two groups, and the scale was pH -2.95 to 4.17, pCO_2 -4.45 to 9.76, bicarbonate -2.95 to 4.16, in 95% relative. Conclusion: The peripheral blood gas pH, pCO_2, bicarbonate level is almost same as arterial blood gas analysis results. And enough to measuring acid-base unbalance state, in absent of arterial blood testing.

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THERAPEUTIC EFFECTS OF EPIGALLOCATECHIN GALLATE ON STREPTOZOTOCIN-INDUCED DIABETIC NEPHROPATHY IN MICE.

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Diabetic nephropathy is one of the most serious complications in diabetes mellitus and has been the most common cause of end-stage renal disease. Green tea extracts have antioxidant properties, and (-)-epigallocatechin 3-O-gallate (EGCG) is known to be the most abundant in green tea. Osteopontin (OPN) is a large phosphoglycoprotein adhesion molecule, and has emerged as a potentially key pathophysiologic contributor in diabetic nephropathy. We examined whether EGCG could amelliorate the development of diabetic nephropathy and its role of OPN. The mice ($n=28$) were divided into 3 groups. Control group ($n=7$) was intraperitoneal (IP) injected 0.9% saline, Streptozotocin (STZ) group ($n=7$) was IP injected STZ 200 mg/Kg and induced diabetic nephropathy. After a 8weeks, EGCG groups ($n=7$/each group) were received EGCG 50 mg/kg and 100 mg/kg body weight by subcutaneous injection. Serum glucose, blood urea nitrogen, serum creatinine, urine volume and urine protein amounts were measured. Western blot assay of OPN was compared for the different groups. Histopathologic examination and immunohistochemical staining of mice kidney were performed. Compared with control group, STZ-group showed an increase in blood glucose, blood urea nitrogen, creatinine levels and urine protein amounts, and a decrease in body weight. All the above parameters were significantly reversed with EGCG treatment. After STZ injection, there were an diabetic glomerulosclerosis with increased renal OPN accumulation and its protein expression in the kidney cortex. EGCG-treated mice kidney showed a reduced expression of above parameters and an reserved pathologic findings. These results suggest that EGCG ameliorates STZ-induced diabetic nephropathy by OPN suppression. The potential use of EGCG in the treatment of diabetic nephropathy should be further explored.

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RELATIONSHIP BETWEEN SERUM LEPTIN LEVEL AND CARDIOVASCULAR, NUTRTIONAL RISK FACTORS IN NON-DIABETIC HEMODIALYSIS.

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Many studies showed that obesity was associated with high level of serum leptin, hyperhomocysteinemia, and insulin resistance in general population. Obesity is associated with various cardiovascular and metabolic complications. However, in end stage renal failure, it has been reported that obesity is associated with a favorable survival of patients. The purpose of this observational study was to investigate the relationship between serum leptin level increased at obesity and cardiovascular, nutritional traditional markers, and the comparison of patient's survival for 5 years according to obesity in non-diabetic hemodialysis. A cross-sectional study was performed in obese and non-obese subjects according to body mass index. Fifteen obese patients (BMI ≥ 25 kg/m^2) and 29 non-obese patients (BMI < 25 kg/m^2) were studied. For each subject, blood was sampled for measurement of serum leptin, insulin resistance, C-reactive protein (CRP) and nutritional parameters before hemodialysis. Insulin resistance was calculated by HOMA-IR. Linear regression analysis was performed to determine the relationship among insulin resistance, serum leptin level and nutritional parameters. In results, serum leptin level was significant positive correlated with BMI, nPCR, pre-albumin and HOMA-IR ($p < 0.05$). Serum leptin level was significant negative correlated with tCO_2 and CRP ($p < 0.05$). Five years survival by Kaplan-Meier analysis was more favorable in obese group but did not show statistical significance ($p=0.053$). In conclusion, serum leptin level was associated with obesity and good nutrition status. But in view of positive correlation of HOMA-IR, serum leptin level may be associated with cardiovascular complication in non-diabetic hemodialysis patients. Therefore, we thought that serum leptin level may be a good nutritional marker and a cardiovascular risk factor. We thought that the further study for the proper leptin level will be needed and help the improvement of survival in non-diabetic hemodialysis patients.

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