sufficient calories, reduction of water, salt, potassium and phosphate intake. Otherwise, any education program was not performed in patients of control group. Nutrition status was assessed by the subjective global assessment (SGA),body mass index (BMI), triceps skinfold thickness (TSF), arm muscle area(AMC) and laboratory markers such as serum albumin, serum blood urea nitrogen(BUN) and hemoglobin(Hb) level before and after the education. Effect of nutrition education was analyzed using ANCOVA test. A total of 49 patients were enrolled in this study and nutrition education was provided to 25 hemodialysis patients. Their mean age was 57.20 ± 15.49 in education group and 55.13 ± 14.42 in control groupand male was 56.0% in education group and 50.0% in control group and, other baseline characteristics were not significantly different between two groups. After the 12-week education, significant improvement was found in SGA, serum albumin, BUN and Hb level. SGA score was improved from 6.36 ± 0.99 to 6.72 ± 0.61 in education group, compared to control group(6.38 ± 0.88 to 6.42 ± 0.88, p=0.029). Improvement of serum albumin level, BUN and Hb was as follows: serum albumin(4.23 ± 0.28 to 4.30 ± 0.25 in education group, 4.28 ± 0.39 to 4.13 ± 0.34 in control group, p=0.040), serum Hb(10.45 ± 1.49 to 11.13 ± 1.74 in education group, 10.51 ± 1.12 to 10.04 ± 1.02 in control group, P=0.004), serum BUN(66.52 ± 18.76 to 70.94 ± 17.26 in education group, 59.50 ± 13.61 to 58.68 ± 13.88 in control group, p=0.032). 12 week nutrition education during the hemodialysis session by hemodialysis nurse was effective

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HIGH SALT INTAKE IN PREGNANCY ALTERS MATURATION OF GLOMERULI IN THE RAT OFFSPRING

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There is currently discussion on the optimal salt intake and uncertainty whether both high and low salt intake is associated with adverse effects. One aspect has so far not be considered, i.e. the potential impact of salt intake during pregnancy on kidney function and blood pressure in the offspring. Faulty fetal programming, amongst others by high or low salt intake, leads to alterations in kidney morphology and albuminuria in the offspring. A low number of glomeruli is known to cause high blood pressure later in life. It was the purpose of the present study to clarify whether very high (or low) salt intakes in pregnancy affect kidney development in the offspring. Sprague-Dawley rats were fed normal (0.15%), medium (1.3%), or high (8.0%) salt diet during pregnancy and weaning. The number of glomeruli (mature, immature, and S-shape bodies) was assessed at 1 week postnatally. The expression of proteins of interest was assessed (by western blotting) at 1 week postnatally and at term. There was no difference between the groups with respect to litter size, birth weight, and placenta size. At age 1 week the number of S-shaped bodies was significantly lower (405 ± 308) and the number of mature glomeruli (818 ± 405) and layers of developing glomeruli (7.1 ± 0.6) was significantly higher in the offspring of mothers on high-salt compared to the medium or low salt groups (1044 ± 490, 460 ± 304, and 5.9 ± 0.9 respectively). As a net result the total number of glomeruli was significantly lower in the offspring of mothers on high-salt (9476 ± 1264) compared to the medium or low salt groups (11175 ± 1920). At 1 week of age in the offspring of mothers on high salt the glomeruli were bigger compared to lower salt intake. The expression of Pax-2 (54 ± 23% vs. 100 ± 28%) and FGF-2 (72 ± 33% vs. 100 ± 30%) was significantly lower in the offspring of mothers on high-salt consistent with their causative role. We conclude that high maternal salt intake during pregnancy accelerates maturation of glomeruli in the offspring, but reduces the final number of glomeruli.

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UREMIC TOXIN MANAGEMENT WITH PRE- AND PROBIOTICS: A META-ANALYSIS

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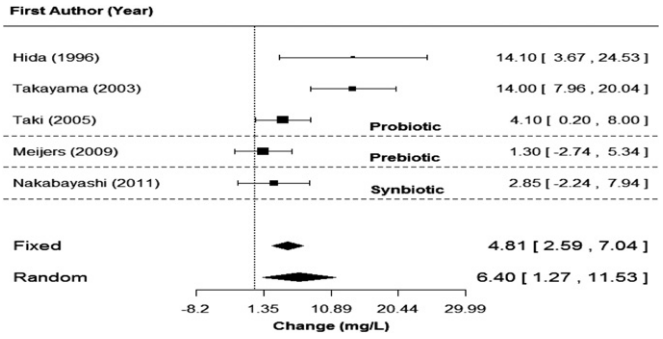
This review evaluated the effectiveness of pre-, pro- and synbiotics on reducing a nephro-vascular uremic toxin, indoxyl sulphate (IS), involved in cardiovascular disease in chronic kidney disease. A review of the literature using Cochrane, PUBMED, EMBASE and CINAHL was conducted from 1951 to 2011 (inclusive). Studies were included if they reported change in IS (or their precursors) as outcome measures in pre-, pro- or synbiotic interventions with a duration of more than one day, were in English language, in human adults with chronic kidney disease (Stage I to V (dialysis)). From the 87 papers identified, five met the inclusion criteria involving 87 patients, all of whom were receiving hemodialysis.

One study investigated prebiotics, three probiotics and one synbiotics. The quality of the studies was limited (GRADE either *low* or *very low*). Summary statistics were translated into means and standard errors, assuming normal distribution.



There is limited but supportive evidence for the effectiveness of pre- and probiotics on reducing IS in the chronic kidney disease population. Well-designed fully-powered studies are needed in order to evaluate the potential use of this treatment in the clinical setting.

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BODY CELL MASS MEASURED BY BIOIMPEDANCE SPECTROSCOPY AS A NUTRITIONAL MARKER.

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Body Cell Mass (BCM) is a sum of all metabolically active cells of the body. Aim of the study was to compare BCM with other nutritional and inflammatory markers in patients with chronic kidney disease (CKD) stage 4-5 (NKF) without dialysis treatment and in hemodialysis patients(HD). We included 45 adult patients with CKD and eGFR < 30 ml/min not treated with dialysis (26 male, age: 59,7 ± 16,8) and 39 adults treated with HD three times a week, for more than three months (26 male, 5 diabetics, age: 59,8 ± 16). Body composition was measured using multifrequency biopimpedance spectroscopy: Body Composition Monitor - FMC. We used BCM index (BCMI) defined as BCM divided by height to the power of 2. To measure hand grip strength (HGS) we used dynamometr Jamar. In statistics analysis we used Pearson correlations (SPSS v18). *Predialysis group:* BCMI: 7,1 ± 1,6 kg/m^2, Lean Tissue Index (LTI): 12,9 ± 2,4 kg/m^2, Fat Tissue Index (FTI): 14,7 ± 5,4 kg/m^2, BMI: 28,2 ± 5 kg/m^2, serum creatinine level (SCr): 3,9 ± 2,1 mg/dl, eGFR: 18,3 ± 7,0034 ml/min/1,73 m^2, albumin (SA): 3,9 ± 0,3 g/dl, prealbumin (PA): 32,8 ± 8,8 mg/dl, CRP: 0,5 ± 0,3 mg/dl. A positive correlation was found with BCMI and HGS (r = 0,55; p=0,001), PA (r = 0,41; p=0,004) and SCr (r =0,37; p=0,012). A negative correlation was found between BCMI and age (r = -0,48; p=0,006), CRP (r = -0,33; p=0,028). We do not observed correlation with BMI and SA. *HD group:* BCMI: 6,4 ± 1,7 kg/m^2, LTI: 12,1 ± 2,3 kg/m^2, FTI: 12 ± 6 kg/m^2, BMI: 24,8 ± 4,8, SCr: 8,9 ± 2,6 mg/dl, TP: 6,7 ± 0,6 g/dl, SA: 3,9 ± 0,47 g/dl, PA 33,8 ± 11,4 g/dl, CRP: 1,1 ± 1,4 mg/dl. A positive, significant correlation was found between BCMI and HGS (r = 0,47; p=0,003). A negative correlation was found with BCMI and age (r = -0,55; p=0,0005) and with CRP (r = -0,31), but not statistically significant. We do not observed correlation between BCMI and BMI, SCr, TP, SA, PA, hemodialysis vintage, Kt/V. Assessment of body compartments is important tool in estimation nutritional status in patients with stage IV-V CKD and hemodialysis patients. Analysis of body composition in association with other markers worth to be studied, especially in larger groups of patients.

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