

Our studies indicate that ghrelin ameliorates wasting, systemic hypertension and LVH with associated improvement in inflammation and mortality in CKD.

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ASSESSMENT OF MALNUTRITION IN AN INCENTRE HAEMODIALYSIS UNIT- SINGLE CENTRE EXPERIENCE

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Malnutrition is highly prevalent among haemodialysis patients, but the best method for assessing nutritional status remains unclear. Historically, Dietitians' use the Subjective Global Assessment (SGA) or Patient Generated Subjective Global Assessment (PG-SGA) tool to assess nutritional status of in centre haemodialysis patients. In 2001 a new tool called the Malnutrition Inflammation Score (MIS) was developed by Zadeh et al.

We conducted an annual malnutrition audit on patients who regularly attend the in-centre haemodialysis units at Gold Coast Hospital District using MIS and SGA/PG-SGA.

An annual malnutrition audit was conducted over a 2 month period with 100 in centre Haemodialysis patients across 2 centres. For each patient a nutritional assessment was conducted using SGA or PG-SGA and MIS assessment tool. The MIS tool was adapted to suit Australian laboratory measurements and units (Alb, TIBC); and the BMI scale adapted to be inline with current guideline recommendations.

Overall the malnutrition rate using PG-SGA/SGA was 28% of patients classified as "malnourished" (26% scored B- moderate malnutrition and 2% scored C-severe malnutrition). According to MIS the rate of malnutrition was 94% (39%-mild malnutrition; 22% moderate malnutrition; 33% severe malnutrition).

In conclusion there is discrepancy in the rate of malnutrition when assessed according to different tools. MIS has been shown to be a better predictor of survival in dialysis patients. We need interventional studies to assess the utility of MIS in improving patient outcome and survival in dialysis patients

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SALIVA COMPOSITION AND UPPER GASTRO-INTESTINAL SYMPTOMS IN CHRONIC KIDNEY DISEASE

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Many chronic kidney disease (CKD) patients experience uraemic symptoms including dry mouth, taste changes, nausea, vomiting and dry retching. Saliva is composed of a number of active compounds that play vital roles in taste stimulation. Salivary composition differs in CKD and patients have an impaired ability to recognise basic tastes. The purpose of this cross-sectional study was to determine any associations between changes in salivary composition, upper gastrointestinal (GI) symptoms and altered taste perceptions in chronic renal failure patients.

Thirty CKD patients (24 males, 6 females, age 69.7 ± 14.2 yrs, glomerular filtration rate < 25 mL/min) were recruited from the Austin Health outpatient renal clinic. A saliva sample was collected to determine biochemical composition. Participants performed a taste identification task to assess perception of the five basic tastes and completed a symptom questionnaire regarding taste changes and upper GI symptoms experienced.

Only 3 (10%) CKD patients reported no upper GI symptoms while 63% complained of a dry mouth, 56% had a changes in taste, 30% complained of nausea and 20% vomited or dry retched. Saliva bicarbonate concentration was inversely related to both dry mouth ($p < 0.003$) and dry retching. ($p < 0.01$) Nausea was reported with higher saliva sodium levels ($p < 0.03$) and a higher saliva sodium/potassium ratio ($p < 0.02$). Correlation analysis revealed saliva bicarbonate concentration was inversely related to liking and intensity of glutamate taste and to the intensity of sour taste ($p < 0.05$). Salivary urea was linked to the perceived intensity of bitter taste ($p < 0.05$). Forty-three percent of patients indicated their symptoms contributed to decreased food intake.

In conclusion this study provides evidence that active compounds are present in the saliva and impact upper GI symptoms in CKD. In particular lower saliva concentrations of bicarbonate are associated with dry mouth and retching, while higher sodium levels and a greater sodium/potassium ratio are associated with nausea. Saliva bicarbonate and urea are associated with taste perception,

especially for glutamate and may influence taste function. Further research is required to clearly establish if changing saliva composition improves uraemic symptoms, taste sensitivity and food intake in CKD patients.

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THINKING OUTSIDE THE SQUARE: NUTRITION SUPPORT IN 18 YR OLD WITH CHRONIC RENAL FAILURE, GASTRECTOMY AND COLECTOMY USING A PAEDIATRIC FORMULA.

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18 yr old female with EBV lymphoproliferative disorder, B cell lymphoma on background of Crohn's disease, sclerosing cholangitis/autoimmune hepatitis overlap underwent total colectomy and gastrectomy due to life-threatening bleeds. During her 132 day PICU stay, she lost 14kg (23% body weight) and developed CRF. Energy requirements were estimated using Schofield Equation, ideal body weight for height, light activity. Several formulae were compared for total energy, goal rate (jejunal feeds without a colon), osmolality, protein allowance and micronutrient requirements for an 18 yr old female. No adult formulae were suitable in this case. Initially, diluted SuplenaTM (1.7kCal/ml) was used, but weight gain was too rapid and protein intake too low (0.7g/kg/d). Nutrini EnergyTM (1.5kCal/ml) met requirements for: energy, protein (~1g/kg), micronutrients (except K, Mg and P [see table]). Feed rate (90ml/hr) was well-tolerated; stool output remained 200-300ml/day. Feeds were given over 16/24 for flexibility. Skinfold measures (TSF, MAC) were 25th-50th percentile and she reached goal weight in 4 months.

Nutrient	Intake	% RDI	Nutrient	% RDI
Energy kJ/kCal	9030/2160	98-102	Vitamin A eq	125
Protein g	59	98-101	Thiamin	301
Fluid (mL)	2000	100	Riboflavin	314
Na (mmol)	76	282 (AI)	Niacin eq	175
K(mmol)	61	91 (AI)*	Vitamin B12	162
Ca (mg)	1296	100	Vitamin C	540
Mg (mg)	245	82*	I	144
P (mg)	1080	86*	Mo	201
Fe (mg)	21.6	144	Se	108

This patient's clinical complexity made meeting nutritional needs very challenging. Serum Mg levels remained normal, and due to CRF, P and K less than RDI is appropriate. A paediatric formula met adult needs in this unique case: low protein, high energy, and adult micronutrient RDIs.

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DO ALBUMIN LOSSES TO DIALYSATE AFFECT SERUM ALBUMIN LEVELS IN MAINTENANCE HEMODIALYSIS PATIENTS?

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Serum albumin (s-Alb) is not reliable marker of nutritional status in maintenance hemodialysis (MHD) patients, because s-Alb levels are not only affected by nutritional intake but also other factors including inflammation, age, comorbidity and albumin loss to dialysate. In this study we evaluated the influence of albumin losses to dialysate on s-Alb levels.

The sixty-four patients who have received MHD during one dialysis session, 45 females; diabetes 14; mean age 65.5 ± 10.9 years; duration of HD treatment 13.2 ± 6.8 years). All patients received four-hour HD session three times per week with ultra-pure dialysate. Pre-dialysis levels of s-Alb were measured at the first HD session in the week. Based on two-day dietary records and photographs, the accomplished dietitians calculated dietary energy intake (DEI) and dietary protein intake (DPI). LBM, fat mass and ECF/TBW (as an index of fluid overload) were measured using BIA (Inbody 3.0) after the first post-dialysis. Albumin losses to dialysate were measured by collecting total amount of dialysate during one dialysis session.

The mean levels of s-Alb and albumin losses to dialysate were 3.46 ± 0.26 g/dl ($2.8-4.1$) and 0.87 ± 1.03 g/session ($0.00-4.84$). The s-Alb levels were not correlated with albumin losses, but correlated with CRP, sex, age, DEI/post-BW and LBM. The multiple regression analysis with s-Alb levels showed CRP and sex were independent variables, but not DEI/post-BW, nPCR, Kt/Vurea,