

Overview

- Dietary intervention for RSC
- Malnutrition
- Symptom control
- Electrolyte and fluid management
- Slowing the progression of disease
- Case study

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Background

Renal supportive care encompasses

- 1. Patients choosing not to have RRT
- 2. Patients with significant symptoms who are continuing on dialysis
- Patients withdrawing from dialysis or active medical treatment

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Dietary intervention

Patients choosing not to have RRT

- 1. Malnutrition prevention
- 2. Symptom control (uraemic and electrolytes)
- 3. Control of electrolytes and fluid
- 4. Slow the progression of CKD

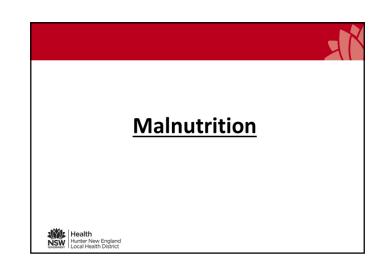


Dietary intervention

Patients with significant symptoms who are continuing on dialysis

Malnutrition prevention
 Symptom control

3. Electrolyte and fluid management



Prevalence and significance Malnutrition in CKD

Malnutrition evident in up to 50% of CKD patients, worsening as eGFR declines

Malnutrition recognised as one of the most significant predictors for adverse outcomes

- Increased hospitalisations
- Increased mortality

Reduction of protein and calories is an important contributor in the catabolic process of malnutrition



Malnutrition in CKD

Protein-energy malnutrition (PEM) characterised by:

- Loss of body fat
- Loss of somatic protein stores (muscle)
- Diminished serum proteins
- Poor performance status
- Reduced cognition
- Reduced function

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Assessing Malnutrition in CKD

Guidelines recommend malnutrition ax should include various measures:

- Changes in weight and anthropometry
- Nutritional intake
- Biochemical parameters (e.g. prealbumin, albumin)
- Validated assessment tool: Subjective Global Assessment (SGA)

*it is <u>NOT</u> recommended that a single biochemical parameter is used (e.g. albumin)



Albumin

Processes which control plasma Alb concentration

- 1. Absolute rate of synthesis (how much we make)
- 2. Fractional catabolic rate (how much is broken down)
- 3. Distribution between vascular and extra-vascular compartments (e.g. plasma volume expansion)

Low Albumin levels can be due to number of factors, including:

-Reduction in synthesis (e.g. liver disease)

-Excess excretion (e.g. proteinuria)

-Redistribution (e.g. haemodilution, increased vascular permeability)

-Inflammation (albumin is -ve acute-phase protein)

-Malnutrition / low dietary intake

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Albumin

Unique conditions in CKD which impact on various control mechanisms of albumin include:

- rate of synthesis
- plasma volume expansion \rightarrow fluid retention / oedema
- exogenous loss of albumin
 - ightarrow during dialysis (10-20g per session) and proteinuria

→ reduced in inflammation & poor nutrition

Therefore, in CKD reduced albumin levels result from combined effects of fluid overload, inflammation, losses from different mechanisms and poor nutritional (protein) intake.

Alb is a marker of illness rather than nutritional state alone

Low serum Alb levels should be a prompt to investigate a patient's overall health rather than solely focusing on nutrition

Assessing Malnutrition in CKD

7 point Subjective Global Assessment

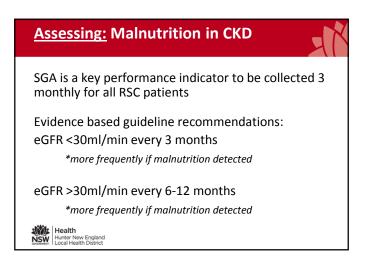
Valid malnutrition assessment tool in the CKD population

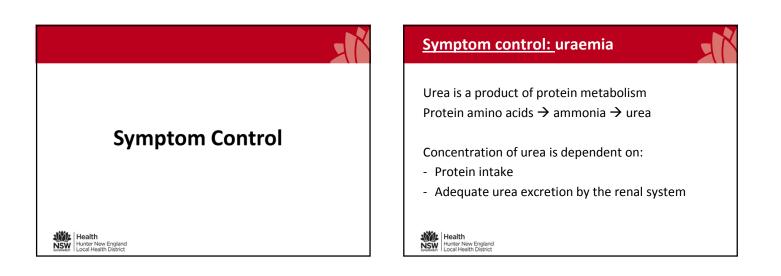
Parameters:

- Change in weight
- Changes in appetite
- Nutrition impact symptoms (appetite, nausea, vomiting, diarrhoea)
- Functional status
- Physical assessment

SGA needs to be completed by a trained clinician

SGA - (7 points)						
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Symptom control: uraemia

At some point in time patients will suffer some or all of the symptoms of uraemia to varying degrees.

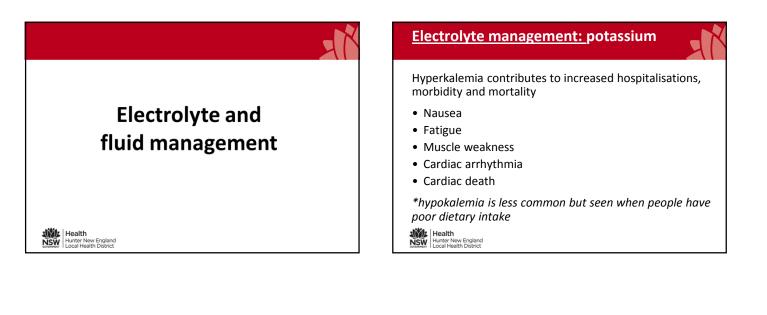
- Poor appetite
- Nausea and vomiting
- Taste changes
- Itching
- Restless Legs

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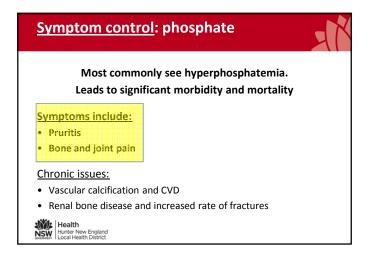
Symptom control: uraemia

Modification of protein is vital to:

- 1. Minimise uraemic symptoms
- 2. Improve quality of life for patients.



Symptom control: Fluid and sodium					
Excess sodium	Excess fluid				
 Increased BP Worsening cardiac and kidney function Reduced QoL 	Increased BP & LV hypertrophy - Worsening cardiac and kidney function - Reduced QoL				
 Increased albuminuria Worsening kidney function Increased protein losses, contributing to malnutrition 	Shortness of breath - Reduced mobility - Reduced QoL - Hospitlisation in severe cases				
Peripheral oedema - Reduced mobility - Reduced QoL	Peripheral oedema - Reduced mobility - Reduced QoL				



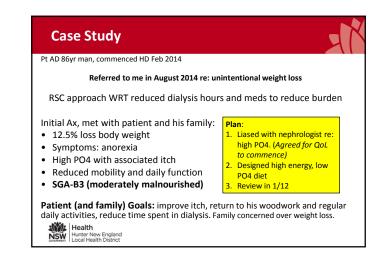


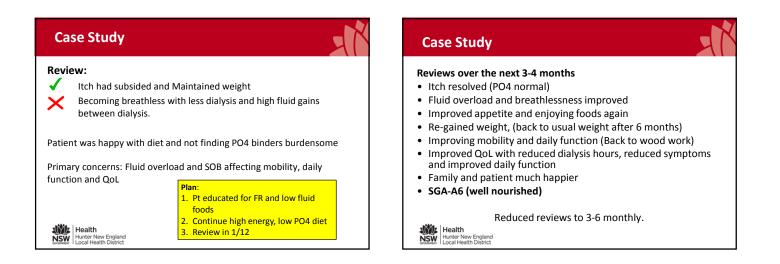
Protein restriction: to slow CKD progression

Latest evidence suggests that low protein diets (0.6g protein per Kg IBW) do NOT increase mortality and maintains adequate muscle stores

Need to ensure these low protein diets are well designed to ensure that patients are meeting their other nutritional needs

Review: Low protein diet Comparison: 1 Low prot Outcome: 1 Benal death	s for chronic kidney o tin versus higher pro	lisease in non diabetic ad tein diets	ults			71
Study or subgroup	Low protein n/N	Higher protein n/N	Risk Ratio M - H, Random, 95% CI	Weight	Risk Ratio M - H, Random, 95% CI	
1 0.6 g/kg/d versus high Locatelli 1991	er protein diet 21/230	32/236	-	15.7.5	0.67 [0.40, 1.13]	
MDRD 1994	18/291	27/294		12.9 %	0.67 [0.38, 1.20]	
Williams 1991	12/33	11/32	-	9.8 %	1.06 [0.55, 2.04]	
Subtotal (95% CI) Total events: 51 (Low pro Heterogeneity: Tau ² = 0.0 Test for overall effect: Z =	Chi2 = 1 37 df = 2	562 (P = 0.50); P =0.0%	•	38.3 %	0.76 [0.54, 1.05]	
2 0.3 - 0.6 g/kg/d versu Cianciaruso 2008	s higher/free protein 9/212	diets 13/211		6.2 %	0.69 [0.30, 1.58]	
di lorio 2003	2/10	7/10		2.5 %	0.29 [0.08, 1.05]	
lhle 1989	4/34	13/38		4.1 %	0.34[0.12, 0.95]	
Jungers 1987	5/10	7/9		8.4 %	0.64 [0.32, 1.31]	
Malvy 1999	11/25	17/25		15.8 %	0.65 [0.39, 1.09]	
Mirescu 2007	1/27	7/26		1.0 %	0.14 [0.02, 1.04]	
Rosman 1989	30/130	34/117	-	23.7 %	0.79[0.52, 1.21]	
Subtotal (95% CI) Total events: 62 (Low pro Heterogeneity: Tau ⁸ = 0.0 Test for overall effect Z =	1: ChP = 6.27, df = 1	436 xin) 5 (P = 0.39); I ^a =4%	•	61.7 %	0.63 [0.48, 0.83]	
Total (95% Cl) Total events: 113 (Low pr Heterogeneity: Tau ² = 0.0 Test for overall effect: Z =): Chi ² = 8.20, df = 9	998 rotein) (P = 0.51); P =0.0%	•	100.0 %	0.68 [0.55, 0.84]	
Health			risk of renal (ce dialysis) re	death (e	.g. needing to	

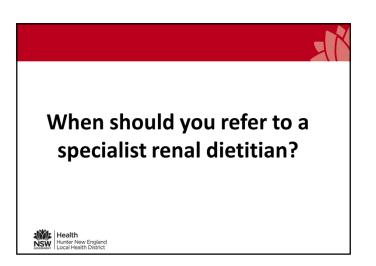




Case Study

Lessons learnt

- Important to understand patient (and family's) concerns, priorities and goals
- Working closely with MDT
- Early intervention to prevent symptoms / issues escalating
- Regular follow up with patient (and family)



Referral for dietetic consultation is a RSC key performance indicator

<u>A blanket referral</u> when a patient is accepted into the RSC program to conduct initial nutrition assessment

Dietary prescription as warranted by individual patient needs WRT:

- symptom control
- improving nutrition and QoL
- electrolyte and fluid management
- Protein modification to slow progression of CKD

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References

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