Appropriate Use of Oral Nutritional Supplements in Stages 4-5 Chronic Kidney Disease

A Consensus Statement for Dietitians and other Healthcare Practitioners

Implementation strategies for using oral nutritional supplements (ONS) in patients with stages 4-5 chronic kidney disease (CKD) are lacking in the UK and current international recommendations[1] are not tailored to the dietetic-led nutrition services prominent in the UK.

A recent meeting of the Renal Nutrition Group (RNG) of the British Dietetic Association (BDA) identified a need for clarity on the use of ONS in these patients and as a result a group of seven renal dietitians, together with a general practitioner, met to discuss and reach agreement on a simple step-by-step consensus algorithm to guide the appropriate use of ONS in patients with stages 4-5 CKD.

The consensus group was chaired and facilitated by **Helen MacLaughlin** from King's College Hospital. Participants were **Harriet Williams**, Chair of the RNG and based at Bangor Hospital; **Jan Flint**, Royal Free Hospital; **Karen Magee**, Belfast City Hospital; **Kevin Jesty**, Royal Berkshire Hospital; **Lakshmi Chandrasekharan**, Southend University Hospital; **Dr Rob Hicks**, GP locum and broadcaster; **Ruth Kander**, Imperial College Healthcare.

Introduction

Nutrition plays a key role in the management of patients with CKD and undernutrition can be a frequent complication. Even though undernutrition is seen in 20% - 50% of patients depending on the stage of CKD[2], there is still a lack of understanding and confusion about screening and diagnosis.

The 'MUST' ('Malnutrition Universal Screening Tool') is not renal specific and is not appropriate for patients with stage 4-5 CKD where weight loss may be masked by fluid gain.[3] The SGA (Subjective Global Assessment[4,5]) and ASPEN (American Society for Parenteral and Enteral Nutrition) / AND (Academy of Nutrition and Dietetics) methodology *assess nutritional status rather than screen for nutritional risk*.[6]

Undernutrition is associated with poor outcomes for patients with stages 4-5 CKD[7] and current evidence supports the use of nutritional interventions in these patients.[8] While there is good evidence that ONS can improve nutritional deficits in patients with stage 4-5 CKD[9] there is a lack of guidance on which classes of products are most suitable and when to use them. Helen MacLaughlin, Renal Dietitian and Chair of the consensus group, said:

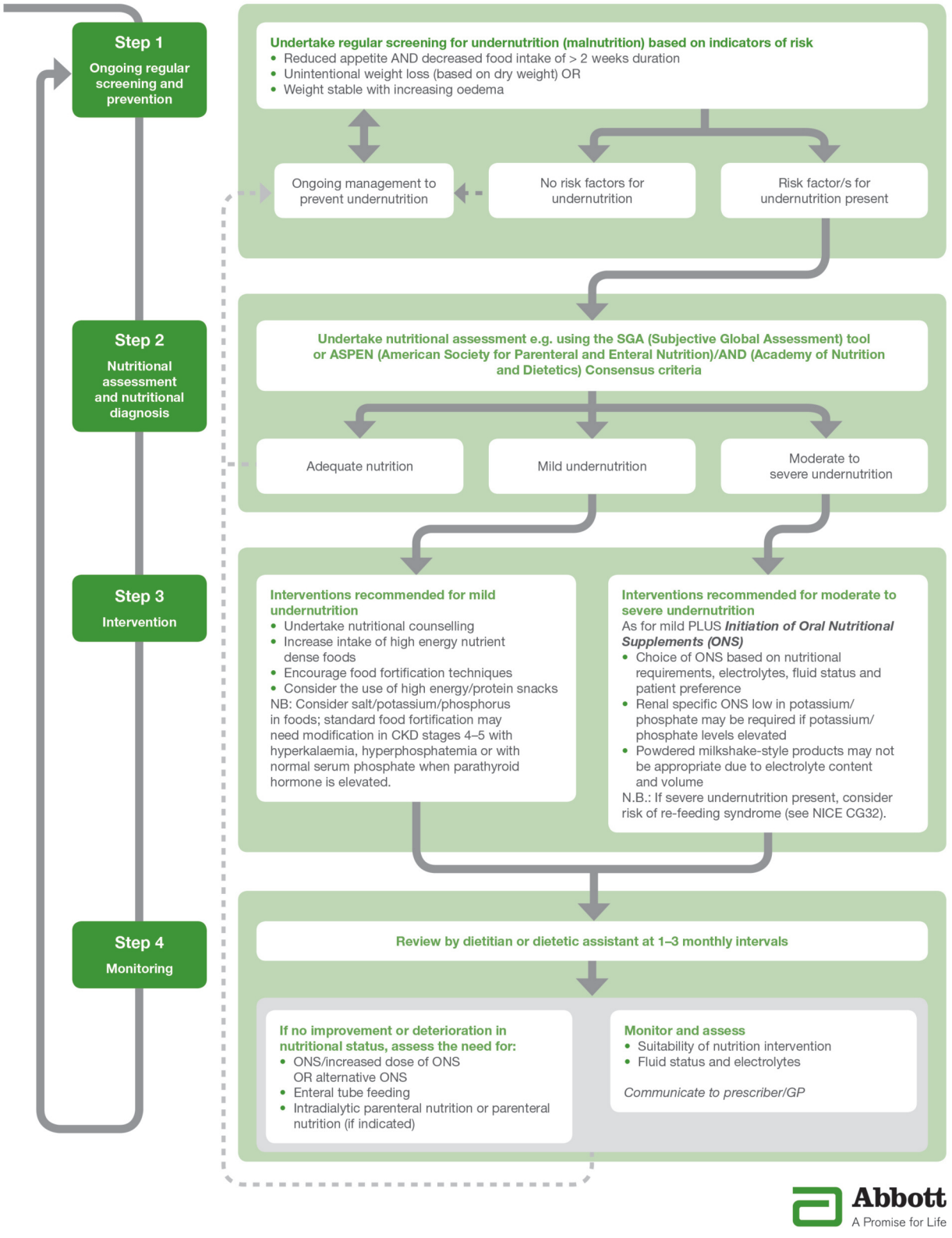
> *"'There are many current evidence-based guidelines for nutrition in CKD, which can be conflicting. Meeting energy and protein requirements whilst keeping serum electrolyte levels safe is the principle aim of dietary intervention, and using ONS can be helpful to achieve this aim."*

In addition, different definitions and terminologies can complicate assessment of the problem of undernutrition (**Box 1,** see page 36).

A consensus statement for ONS in stage 4-5 CKD

Taken together, the issues outlined above suggest a need for clear and simple recommendations on the use of ONS in advanced CKD. This need was identified by the RNG of the BDA and, as a result, a consensus meeting was held to discuss and agree an algorithm – not just for renal dietitians, but for the whole of the multi-disciplinary team (MDT). The consensus guide featured on the next two pages is designed to be a practical tool for implementing best-practice nutritional support for these patients, including when and how to use ONS. The guide can be downloaded from https://www.abbottnutrition.co.uk/support-and-tools/articles/improved-nutritional-management-for-ckd-patients-now-a-step-closer-–-new-best-practice-consensus-guide. .

Consensus statement on nutrition support and the use of oral nutritional supplements in patients with stages 4–5 chronic kidney disease



Box 1: Terminology and definitions

Protein Energy Wasting (PEW): Describes conditions with elements of inflammation where, for example, intake might be sufficient but weight loss is problematic. The International Society of Renal Nutrition and Metabolism (ISRNM) expert panel has defined PEW as a *'state of decreased body stores of protein and energy fuels (body protein and fat masses).'*[10]

Malnutrition: There is no universally accepted definition of malnutrition and it can cover both under- and overnutrition; NICE states that malnutrition is a *'state in which a deficiency of nutrients such as energy, protein, vitamins and minerals causes measurable adverse effects on body composition, function or clinical outcome.'*[11]

Undernutrition: In the algorithm, the term undernutrition has been used to describe any situation in which there is insufficient energy intake.

Step 1

Screening and ongoing management to prevent undernutrition should include:

- Regular screening for undernutrition *(Wright & Jones, 2010)*
  - Weekly for inpatients
  - 2–3 monthly for outpatients with estimated Glomerular Filtration Rate (eGFR) <20 but not on dialysis
  - Within one month of commencement of dialysis then 6–8 weeks later
  - 4–6 monthly for stable dialysis patients
- Optimise body mass index (BMI) (based on dry weight)
- Undertake nutritional counselling at least 6 monthly
- Consider any psychosocial issues that may have an impact on nutritional status e.g. ability to shop and/or prepare food; low mood/depression
- Consider micronutrient status and multivitamin and mineral supplementation
- Liaise with the multi-disciplinary team to manage uraemic symptoms, and optimise blood glucose control, blood pressure and dialysis therapy

Step 2

Assessment by dietitian (or personnel in line with local protocol)

- **Nutritional assessment and nutritional diagnosis:** Using SGA *(Detsky et al., 1987; Steiber et al., 2007)* or ASPEN/AND Consensus criteria *(White et al., 2012)*
- Classify undernutrition as mild, or moderate to severe using SGA *(Detsky et al., 1987; Steiber et al., 2007)* or ASPEN/AND consensus *(White et al., 2012)*
  - ASPEN/AND criteria is two or more of:
    - Insufficient energy intake
    - Weight loss
    - Loss of muscle mass
    - Loss of subcutaneous fat
    - Localised or generalised fluid accumulation that may sometimes mask weight loss
    - Diminished functional status as measured by hand grip strength

If no undernutrition, continue preventative management and regular screening.

Step 3

Nutritional intervention for undernutrition

Treatment goal for pre-dialysis, haemodialysis and peritoneal dialysis is to meet estimated energy and protein requirements

- *For stage 4 and stage 5 CKD pre-dialysis*
  - Protein intake 0.75g/kg Ideal Body Weight (IBW)/day, equivalent to the RNI *(Wright & Jones, 2010)*; do not offer very low protein diets (less than 0.6–0.8g protein/kg/day) *(NICE CG182)*
  - Energy 30–35 kcal/kg IBW/day *(Wright & Jones, 2010)*
- *For stage 5 CKD undergoing haemodialysis (Naylor et al., 2013)*
  - Protein ≥ 1.1g/kg IBW/day
  - Energy 30–40 kcal/kg IBW/day
- *For stage 5 CKD undergoing peritoneal dialysis (Naylor et al., 2013)*
  - Protein ≥1–1.2g/kg IBW/day
  - Energy 30–40 kcal/kg IBW/day

Consider metabolic state, markers of inflammation, acidosis, wound healing, and other conditions that may further increase protein requirements.

Nutritional Intervention for undernutrition:

- Consider renal specific and energy dense/lower volume feeds when choosing ONS – when electrolyte or fluid modification required (based on kidney function, biochemistry, current dietary intake, and physical examination for fluid status)

Step 4

Monitoring: Review by dietitian or dietetic assistant 1–3 monthly to assess:

- Suitability of nutritional intervention as measured by:
  - Improved energy intake
  - Meeting estimated energy and/or protein requirements
  - Weight maintenance and/or weight gain (based on dry weight)
  - Improved functional status
  - Improved body composition
- Fluid status
- Serum electrolytes

Communicate relevant changes in nutritional status and/or management to GP or other prescriber including:

- Details of full nutritional assessment
- Recommended range of ONS that would be appropriate
- Why other ONS are not appropriate
- Likely duration of treatment/ONS prescription
- Planned review date

References

- Detsky AS *et al. JPEN* 1987;11(1):8–13.
- Naylor HL *et al. J Hum Nutr Diet* 2013;26:315–328.
- NICE [CG32], 2006: http://www.nice.org.uk/Guidance/CG32 Accessed 18th March 2015.
- NICE [CG 182], 2014 https://www.nice.org.uk/guidance/cg182 Accessed 18th March 2015.
- Steiber A *et al. J Ren Nutr* 2007;17(5):336-342.
- White JV *et al. JPEN* 2012; 36:275–283.
- Wright M & Jones C. UK Renal Association, 2010: http://www.renal.org/guidelines/modules/nutrition-in-ckd#downloads Accessed 18th March 2015.

This guidance has been developed by the following group on behalf of the Renal Nutrition Group of the British Dietetic Association: Helen MacLaughlin (Chair of Consensus Statement Group; King's College Hospital), Harriet Williams (Bangor Hospital), Lakshmi Chandrasekharan (Southend University Hospital), Karen Magee (Belfast City Hospital), Jan Flint (Royal Free London), Kevin Jesty (Royal Berkshire Hospital), Ruth Kander (Imperial College Healthcare) and Dr Rob Hicks (GP locum and broadcaster).

All management strategies for undernourished patients should be developed by a multidisciplinary team and considered in accordance with local practice guidelines for screening, referrals and management.

Supported by an educational grant from Abbott Nutrition. The views expressed are those of the expert group and not necessarily those of Abbott Nutrition.

Date of preparation: April 2015. RXANI150055

Abbott Nutrition

Summary

The consensus statement was developed in response to a need identified by the RNG of the BDA and is intended for use by all dietitians, as well as other members of the MDT. It provides clear recommendations on when to use ONS in stages 4-5 CKD, the suitability of different products and appropriate monitoring.

Acknowledgement

This article has been supported by an educational grant from Abbott Nutrition. The views expressed are those of the expert group, and not necessarily those of Abbott Nutrition.

References: **1.** Ikizler A, et al (2013). Prevention and treatment of protein energy wasting in chronic kidney disease patients: a consensus statement by the International Society of Renal Nutrition and Metabolism. Kidney Int.; 84: 1096-1107. **2.** Chung S, et al (2012). Malnutrition in patients with chronic kidney disease. Open Journal of Internal Medicine; 2: 89-99. **3.** Lawson CS, et al (2012). Assessing the validity and reliability of the MUST and MST nutrition screening tools in renal inpatients. J Ren Nutr.; 22(5): 499-506. **4.** Detsky AS, et al (1987). What is Subjective Global Assessment of Nutritional Status? JPEN; 11(1): 8-13. **5.** Steiber AL, et al (2007). Multicenter study of the validity and reliability of subjective global assessment in the hemodialysis population. J Ren Nutr.; 17(5): 336-42. **6.** White JV, et al (2012). Consensus statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: Characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). JPEN; 36: 275-283. **7.** Steiber AL (2014). Chronic kidney disease: considerations for nutritional intervention. JPEN; 38: 418-426. **8.** Ash S, et al (2014). Nutrition prescription to achieve positive outcomes in chronic kidney disease: a systematic review. Nutrients; 6: 416-451. **9.** Fouque D, et al (2007). EBPG Guideline on Nutrition. Nephrol. Dial Transplant; 22(2): ii45-ii87. **10.** Fouque D, et al (2008). A proposed nomenclature and diagnostic criteria for protein-energy wasting in acute and chronic kidney disease. Kidney Int.; 73: 391–398. **11.** NICE (2006). Nutrition support in adults: Oral nutrition support, enteral tube feeding and parenteral nutrition [CG32]. Accessed online: www.nice.org.uk/guidance/cg32/resources/guidance-nutrition-support-in-adults-pdf (24th April 2015).

Date of preparation: May 2015. RXANI150055a