The role of nutrition in aggressive haematological malignancies:

A single-centre review of patients receiving intensive chemotherapy

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Introduction

- Aggressive haematological malignancies need aggressive treatments. Tolerability of treatment depends on the level and maintenance of pre-morbid fitness, which require adequate nutrition.
- Malnutrition is common, reflecting patient, disease and treatment factors. It is associated with higher risk disease, poorer prognosis, and worse quality of life.[1-6]
- There is no consensus on how to identify and manage the risks of malnutrition in patients with haematological malignancies.

The aim of this service evaluation was to investigate the usefulness of existing nutritional assessments, measure weight loss during treatment, and explore the role of dietetic support for patients receiving their first cycle of intensive chemotherapy.

Patients

21 consecutive patients, admitted between June 2018 and May 2019 and treated with intensive chemotherapy for newly diagnosed AML or high-grade NHL, were included in this study. Patient characteristics shown in the table.

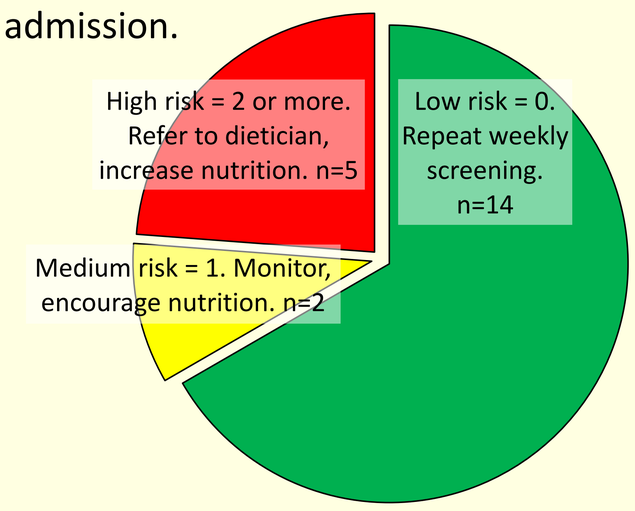
Age	50 years	(27 to 69)
Men, number (%)	12	(57%)
Diagnosis and treatment		
AML, number (%)	15	(71%)
DA 3+10	11	
DA 3+10 + GO	2	
FLAG-IDA	1	
FLAG	1	
High-grade NHL	6	(29%)
R-CODOX-M	6	
Height	1.72 m	(1.58 to 1.9)
Admission weight	83.3 kg	(54.4 to 118.8)
Admission BMI	28.4	(18.9 to 41.6)
Admission albumin	40 g/L	(27 to 49)
Admission CRP	29 mg/L	(2 to 229)
Length of stay	33 days	(5 to 74)
Number of infective episodes	2.1	(1 to 5)
Proportion of admission on IV antibiotics	64%	(27 to 100)

Average (range) shown, unless otherwise stated

Malnutrition Universal Screening Tool (MUST)[7]

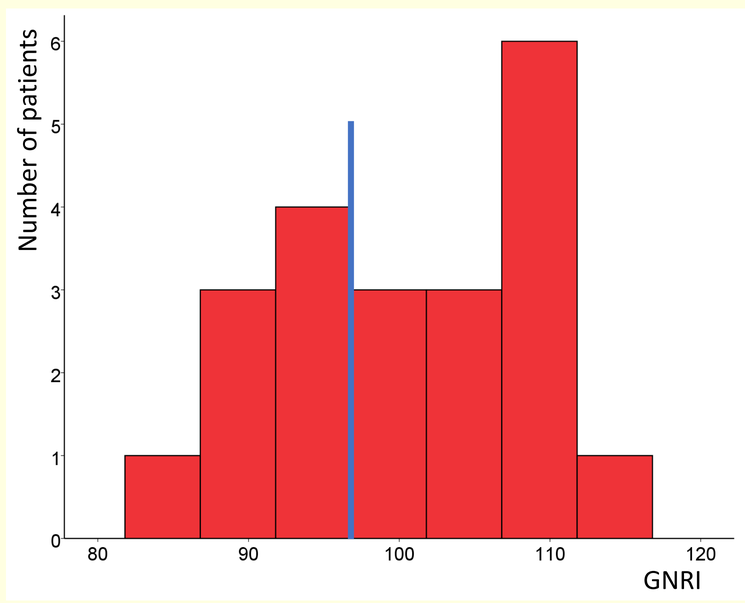
BMI		Unplanned weight loss	
>20	(0)	<5%	(0)
18.5-20	(1)	5-10%	(1)
<18.5	(2)	>10%	(2)
Acutely ill *and* no nutrition for >5 days	(2)		

20/21 patients were assessed within 3 days of admission.



Geriatric Nutritional Risk Index[6]

GNRI =
{1.489 x albumin (g/L)} + {41.7 x [weight / IBW]}
[Weight / ideal body weight] capped at 1
Lower score for higher nutritional risk. Score <96.8 shown to be associated with disease risk and poorer survival in DLBCL.[6]
This cohort:
Mean score = 100.1 (range 81.9 to 112.1)
3 patients had BMI <22 *or* weight < IBW

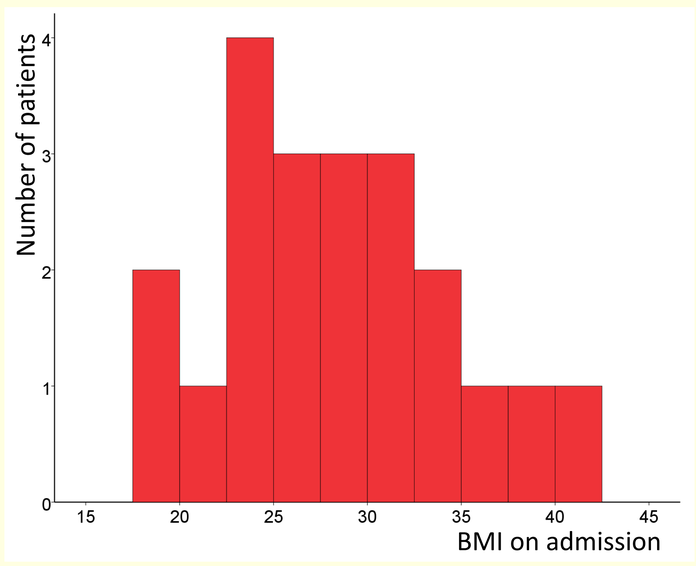


Nutritional support

15 patients (71%) were referred to the dedicated Macmillan dietitian. Review was associated with complete nutrition records and use of NG feeding.

Body mass index

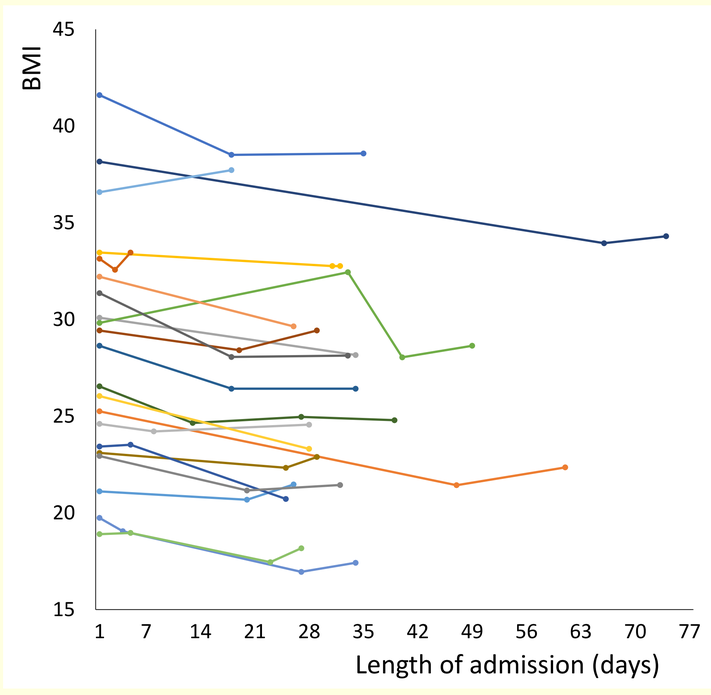
On admission, no patients were underweight (BMI <18.5). 14 patients (67%) were at least overweight.



Weight change during treatment

20 patients (95%) lost weight during their admission for induction chemotherapy. 6 patients lost ≥10% of their body weight. Mean maximal weigh loss 5.6kg (range 0 to 12.1).

17 patients (81%) lost weight at discharge, compared with admission. Mean weight change over the admission -4.4kg (range -10.9 to +3kg).



Patients with the longest admission duration lost the most weight (r=0.68, p=0.001). Weight loss correlated with admission CRP (ρ=0.43, p=0.051).

Weight loss not predicted by age, BMI on admission, albumin, or MUST or GNRI nutritional risk scores.

Conclusions

Existing measures of nutritional status translate poorly to patients receiving intensive chemotherapy for aggressive haematological malignancy, due to:

- Lack of sub-/acute weight loss
- Weight changes affected by fluid accumulation
- BMI often high at presentation
- Confounding of biochemical parameters by severe acute illness
- Subjective element to MUST tool

Early and proactive input from a specialist dietitian can support patients through treatment.
Better tools (e.g. mid-upper arm circumference, handgrip strength, bioelectrical impedance) are needed, to further target nutritional intervention.

References: [1]Hebuterne *et al*. (2014) J Parenter Enteral Nutr 38:196, [2]Li *et al*. (2018) Medicine 97:3(e9663), [3]Deluche *et al*. (2017) Nutrition 41:120, [4]Malihi *et al*. (2013) J Hum Nutr Diet 26:123, [5]Go *et al*. (2019) Ann Hematol 98:401, [6]Kanemasa *et al*. (2018) Ann Hematol 97:999, [7]BAPEN www.bapen.org.uk/screening-and-must/must-calculator

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