

Dietetic-led critical care nutrition interventions provided to critically ill patients with COVID-19 in a large London teaching hospital from March 2020-April 2021

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INTRODUCTION

In March 2020, the exponential increase in ICU admissions due to the COVID-19 pandemic required significant planning and restructuring of dietetic services to ensure safe and effective nutrition provision. ICU dietitians were faced with multiple challenges including how to best provide nutrition support for patients with an unknown disease; rapidly train redeployed dietitians inexperienced in ICU nutrition; prioritise dietetic input; and manage the logistics of shortages of enteral nutrition (EN), feed pumps, and ancillaries.

Nutrition guidelines were written rapidly based on experiential learning. Feeding protocols were devised to simplify nutrition delivery and ensure consistency of nutrition interventions at a time when EN was perceived difficult to achieve and not a medical priority.

OBJECTIVES

To describe dietitian-led nutrition interventions for patients with COVID-19 during ICU admission. As knowledge of COVID-19 and its medical treatments were evolving, dietetic-led nutrition interventions between surge one (S1) and surge two (S2) were compared.

METHODS

A prospective observational study was conducted by enrolling critically ill patients with COVID-19 admitted to the ICU service in a large academic hospital. Clinical and nutrition data were collected during S1 (March-June 2020) and S2 (November 2020-March 2021). COVID ICU feeding protocol to start within 48hrs of admission. If nutritional needs not met, ICU RD provided dietetic assessment & individualised nutrition plan.

RESULTS

453 COVID-19 patients were recruited, of which, 200 patients were admitted during S1 and 253 during S2

Of the 453 patients, 167 (37%) were malnourished on ICU admission

All required individualised dietetic-led interventions during ICU admission as the ICU nutrition protocol did not meet nutritional needs

More patients required feed adjustments for calories derived from propofol ($p=0.001$), impaired renal function or changes in fluid or electrolyte status ($p=0.001$) in S1

Whereas adjustment for gastrointestinal dysfunction was more common in S2 ($p=0.001$)

Most patients required high-protein enteral feeds during ICU admission in S1 and S2 (184, 92% vs. 236, 93%)

No difference in the proportion of patients requiring concentrated feeds (39, 20% in S1 vs. 45, 18% in S2).

More peptide feeds were used in S1 (26, 13%) than in S2 (17, 7%) ($p = 0.03$).

Protein supplementation also increased from S1 (98, 49%) to S2 (174, 69%) ($p = 0.001$)

All lost weight in ICU; mean (SD) total percentage loss of 8.8% (6.9%). 32% lost > 10%. No difference in weight loss between surges

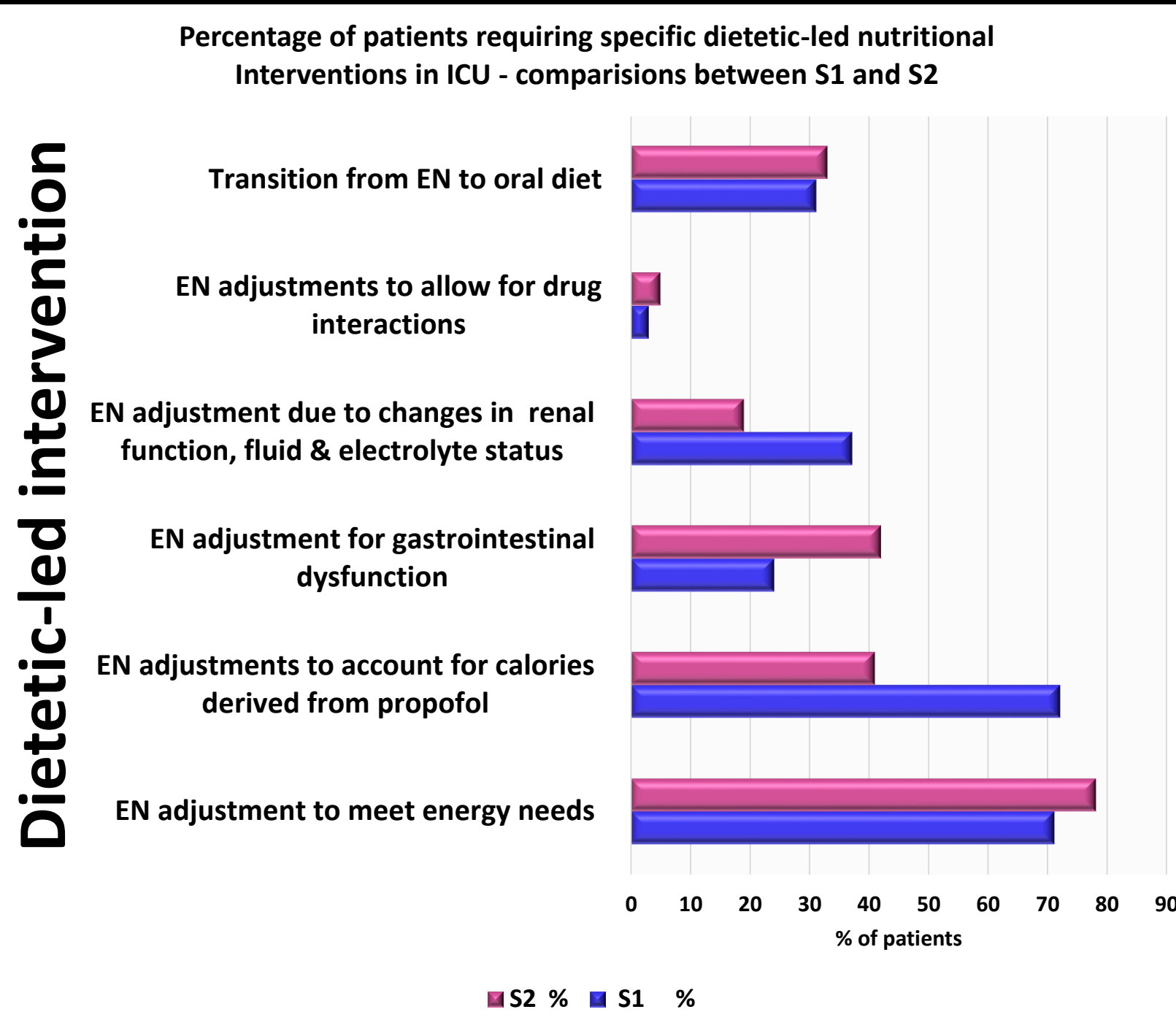
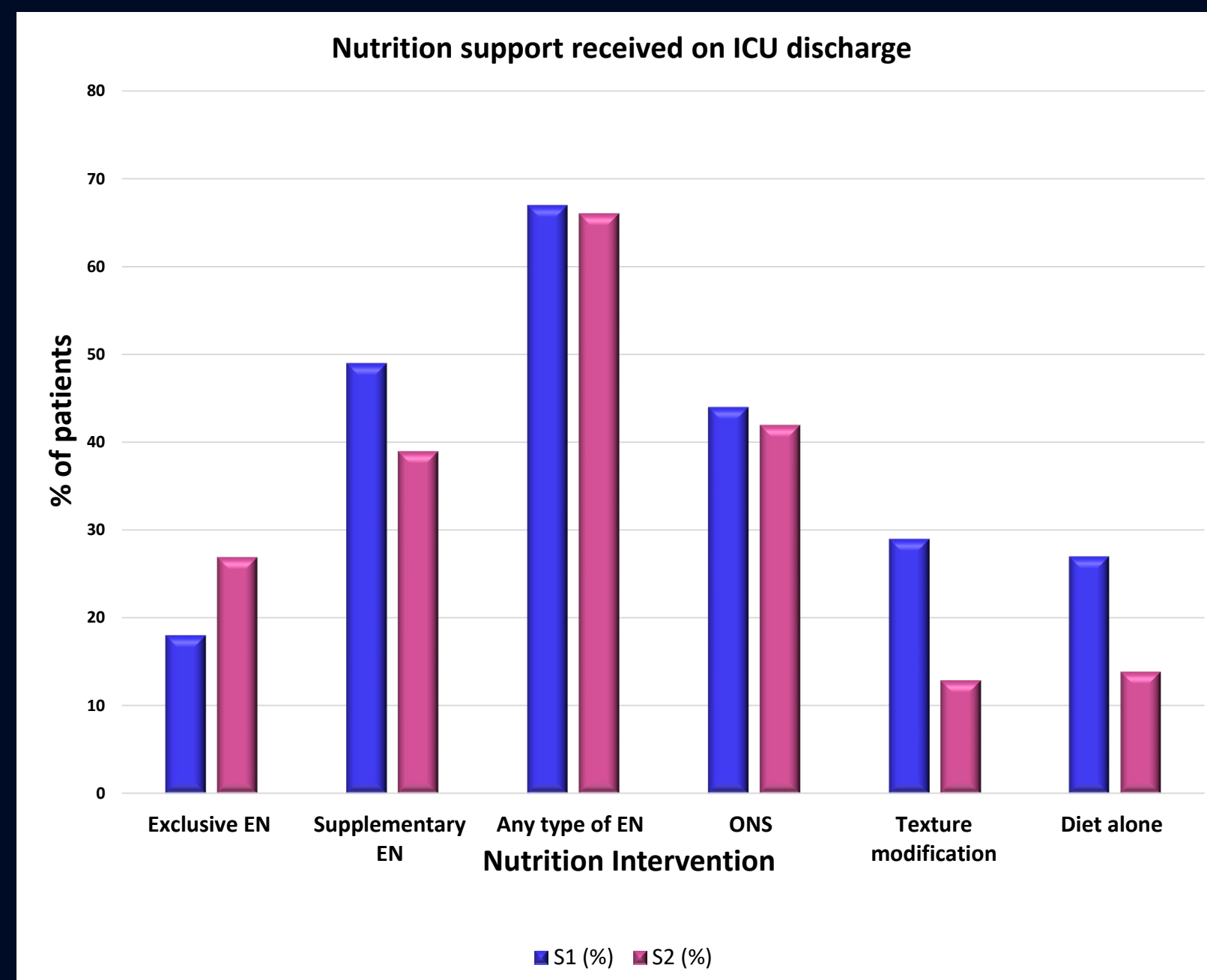


Table 1. Weight loss experienced according to surge

	All N = 160	S1 N = 78	S2 N = 82
ICU admission weight (kg)	85 (20.1)	86 (21)	84 (19.4)
ICU admission BMI (kg/m ²)	29 (6.3)	29 (6.5)	29 (6.1)
ICU weight loss (kg)	7.9 (6.8)	7.8 (7.8)	8.1 (5.9)
ICU weight loss %	8.8 (6.9)	8.5 (7.7)	9.0 (6.3)
% ICU weight loss			
N (%)			
< 5 %	58 (35)	30 (41)	36 (40)
5-10%	57 (34)	27 (36)	27 (30)
> 10%	53 (32)	22 (30)	26 (29)
Total weight loss (kg) from ICU admission to hospital discharge	7.5 (6.6)	8.0 (7.4)	7.3 (6.1)



CONCLUSIONS

- In this large, prospective cohort of patients with COVID-19, 100% of patients required individualised dietetic-led nutrition interventions during ICU admission, as the standardised ICU nutrition protocol did not meet nutritional needs.
- Over one-third of patients were malnourished on ICU admission, and all patients lost weight in the ICU.
- Disease complexity and evolving nature of medical management during the pandemic necessitated multifaceted dietetic-led nutritional strategies which differed between surges.
- Most patients were nutritionally compromised at ICU discharge and required ongoing dietitian-led individualised nutrition interventions in the ward



Dietitians Rhiannon Lewis, Ella Terblanche and Edie Russell in the Intensive Care Unit overseeing dietetic interventions for Covid-19 patients

