



Low volume vs regular oral nutrition supplement consumption in hospital

A pilot comparative effectiveness trial

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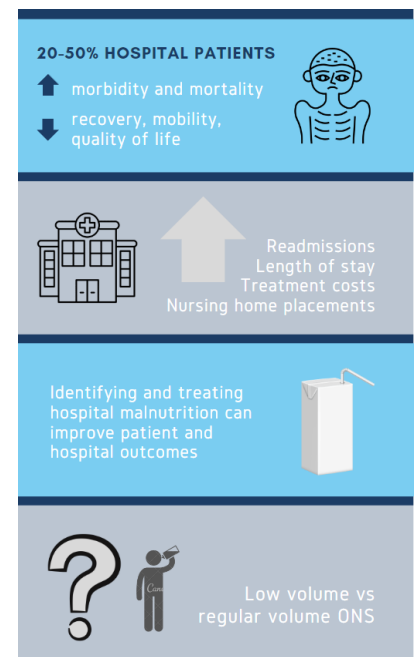


Overview

- Background: Hospital malnutrition oral nutrition support
- Evidence: Low volume vs regular volume supplements
- Study aim and methods
- Findings: Feasibility, acceptability, consumption/intake
- Discussion, strengths/limitations, future directions
- Q&A

Background

- **Hospital malnutrition** = major issue
- **Oral nutrition supplements (ONS)** used to prevent/address malnutrition
 - Adherence can be a barrier
- Lower volume ONS may be better consumed & routinely used in practice
- Few studies formally evaluating low vs regular volume ONS in hospital patients



Evidence

- **Hubbard et al. 2010** → longitudinal study in 3 care homes and 4 hospitals (UK, Netherlands)
- 38 patients offered standard 200mL ONS (1.5–2.0 kcal/mL) ad lib for 3 days, then low volume 125mL ONS (2.4 kcal/mL) for 3-5 days



Significantly greater mean compliance (91%) compared with standard ONS (77%) (P = 0.0001)



Significantly greater total energy (+200kcal/d, P = 0.01) and protein (+11g/d, P = 0.005) intakes*



Significantly greater intakes of both energy (30%, P = 0.002) and protein (24%, P = 0.004) from energy dense ONS*

Well-designed randomised trials are warranted

Hubbard GP, Buchan B, Sanders K, Brothers S, Stratton RJ. Improved compliance and increased intake of energy and protein with a high energy density, low volume multi-nutrient supplement. Proceedings of the Nutrition Society. 2010;69(OCE2):E164.

Study aim

To determine the compliance (adherence) and wastage of low-volume multi-nutrient oral nutrition supplements and compare this to nutritional intakes in hospital inpatients.

No studies to provide data for sample size estimate

Complexity of implementing a trial within usual clinical practice in hospital

Study aim

To estimate the SD of consumption (adherence) and wastage of low-volume vs. regular-volume oral nutrition supplements and pilot study protocol to inform a larger trial.

Pilot can provide data for sample size estimate

Can test study protocol (i.e. determine feasibility of running trial in practice)

Methods

Study design

Pilot comparative effectiveness trial (pragmatic) embedded in usual practice

Study setting

4 wards at GCUH (respiratory, medical, oncology, trauma)

Participants

n=50

Patients with inadequate oral intake requiring 2 x ONS / day (determined by ward dietitian)

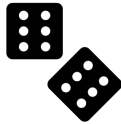
Included: able to consent, can take thin fluids orally, expected to stay in hospital for >2 days

Excluded: prior participation in study, dying/palliative, contraindications for ONS

Methods



Ward dietitian **identified** eligible patients
Research assistant **recruited** consenting patients



Patients **randomised** to receive (daily for 3 days):

2 x STANDARD ONS (200mL)
1263kJ, 12.5g protein per serve

or

2 x LOW VOLUME ONS (125mL)
1263kJ, 18g protein per serve



ONS containers were **weighed** to calculate grams consumed and calculate energy/protein intakes
Patient satisfaction survey on study completion

Results: Demographics



50 patients recruited

Median **age 73.5 years** (range 23–88 years)

Median **LOS 8 days** (range 1–22 days)

Majority **male (64% n=32)**

Wards: Respiratory (78%), trauma (16%),
oncology/medical (6%)



Of 22 patients with SGA completed:

A: 13% (n=3)

B: 64% (n=14)

C: 23% (n=5)

Results: Acceptability

Survey Q2: **How easy was it to drink all your ONS?** (n=36)

Group	Difficult	Neutral	Somewhat easy	Very easy
Control	11%	5%	21%	63%
Intervention	-	6%	18%	76%

Survey Q3: **What did you think about the amount of ONS?** (n=35)

Group	Too much	Just the right amount	Could drink more if asked to
Control	16%	74%	10%
Intervention	-	63%	37%



p=.066

Results: Acceptability

Survey Q4: **How full did you feel after drinking your ONS?** (n=36)

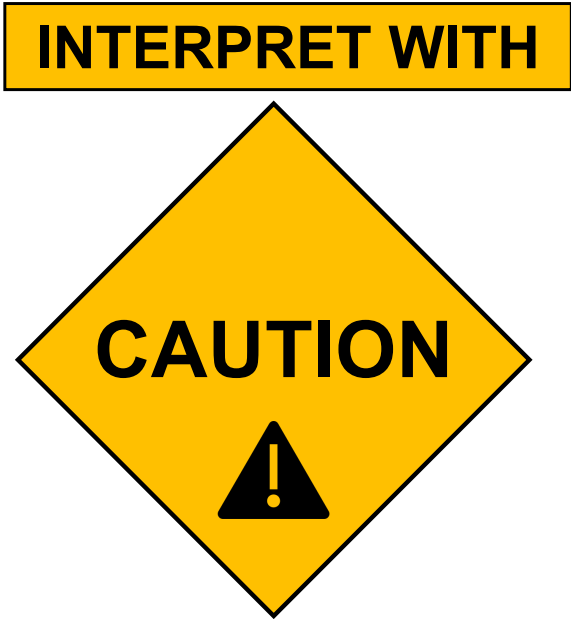
Group	Very full	Somewhat full	Neutral	Not full
Control	16%	42%	32%	10%
Intervention	12%	29%	47%	12%

Survey Q5: **Do you think the ONS affected your food intake?** (n=36)

Group	Yes – couldn't eat my meal	No effect	Yes – could eat more of my meal
Control	32%	58%	10%
Intervention	29%	65%	6%

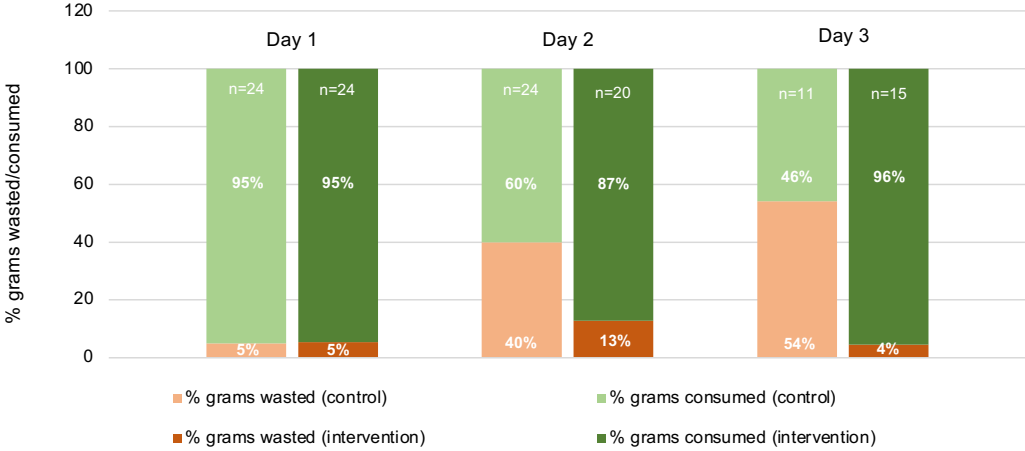


Results: ONS consumption/wastage



Results: ONS consumption/wastage

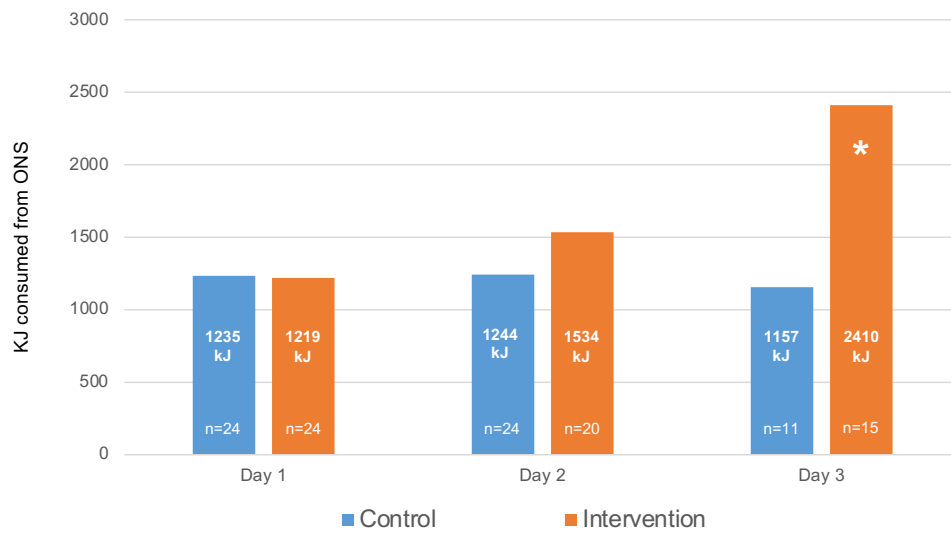
ONS consumption and wastage between groups



- 2 crossover patients excluded from analysis
- Median values used as data not normally distributed
- ✗ No statistically significant differences between groups



Results: ONS energy intake between groups (kJ)

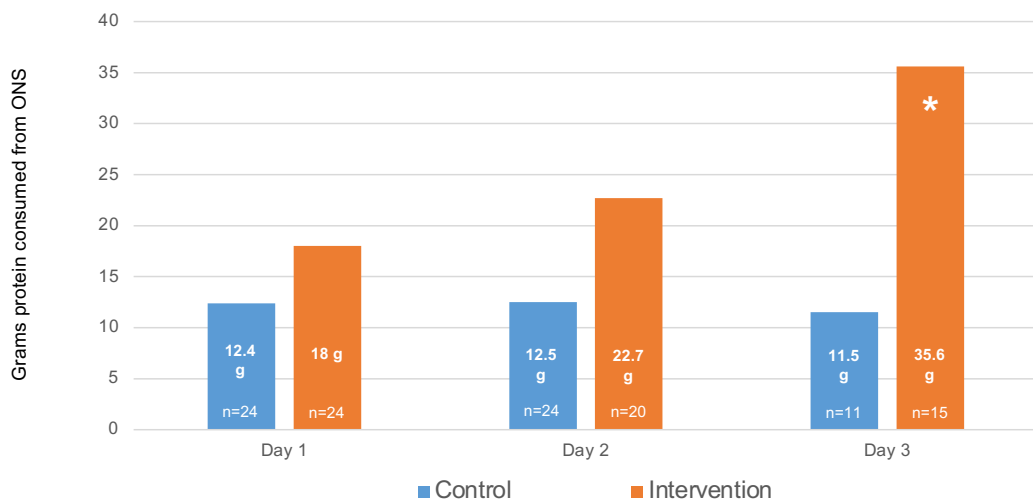


- Median values used as data not normally distributed
- Note patients may have received 1 or 2 ONS / day

*Significant difference between groups on Day 3 only ($p < 0.05$)



Results: ONS protein intake between groups (grams)



- Median values used as data not normally distributed
- Patients may have received 1 or 2 ONS / day
- Intervention ONS had more protein / serve

*Significant difference between groups on Day 3 only ($p < 0.05$)

Discussion: Feasibility



- **Recruitment was slow and challenging**
 - Barriers: constant capacity alerts at GCUH, dietitians' high workloads, small number of eligible patients per week
- **Difficult to keep patients in study for three days**
 - Barriers: early discharges (capacity alerts), recruitment timing/RA availability, withdrawal due to dislike of ONS
- **Implementation was complex within usual practice**
 - Storage/delivery of study ONS, recording ONS delivery in ieMR/fluid balance charts, collecting ONS containers for weighing, coordination with dietetics & nursing

Discussion: Acceptability

- **Overall, fair adherence to ONS**
 - Barriers: dislike of ONS caused patients to request switch (complicating analysis) or withdraw from study
- **Satisfaction data underpowered (*pilot)**
 - No significant differences seen between groups seen yet



Discussion: ONS intake



- **Cannot yet determine consumption/wastage**
 - Seems to be a trend towards sustained consumption of intervention product over time vs control
 - Data is complex and difficult to interpret
 - Study is not sufficiently powered (*pilot)
- **Possible trend for ↑energy/protein intake with intervention product over time**
 - Day 3 only – need larger sample size to determine
 - Intervention product contained same kJ but more protein
 - Patients switching groups may have had an effect

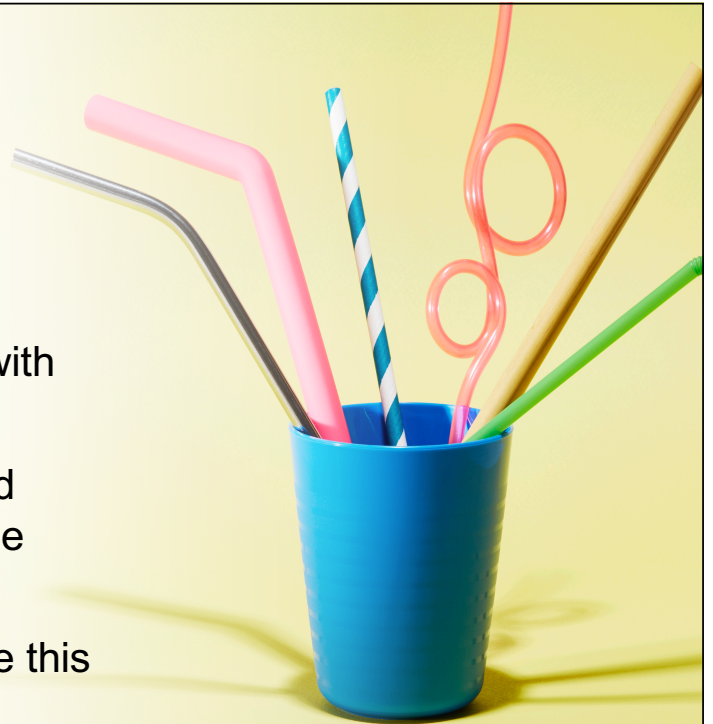
Strengths and Limitations

- First well-designed RCT (to our knowledge) evaluating low vs regular volume ONS in hospital patients
- Embedded in usual practice with real patients (those needing ONS) so is a true indicator of consumption/wastage
- Pragmatic design benefits patients

- Crossover between groups makes data analysis complicated
- Patients may have received one or two ONS / day (didn't affect % grams wastage but influenced energy/protein intake)

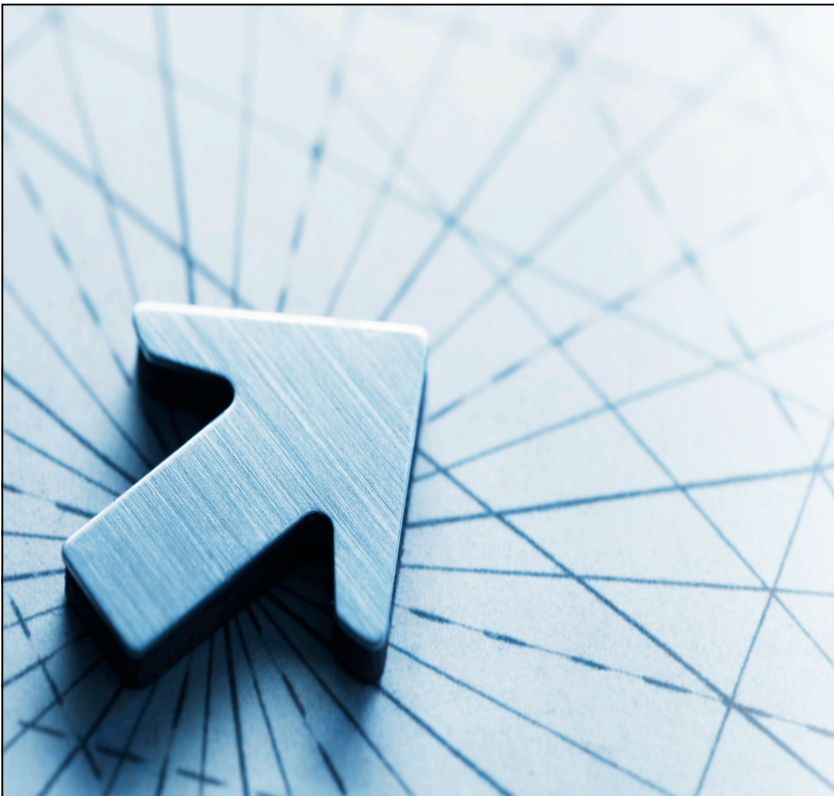
Summary of findings

- RCT protocol feasible in hospital with sufficient resources / organisation
- Appears to be a trend for improved intake / less wastage of low volume ONS over time
- Definitive trial needed to determine this



Future directions

- ?Future trial (dependent on sample size, resources)
 - Sample size calculation underway
- Provides a protocol for comparing low/regular volume ONS in usual practice (hospital)
- Recommend more trials in different settings/countries if findings would influence clinical practice





Questions for the audience

- If a full trial was undertaken, would this information influence your clinical practice? Or is patient preference the main factor in deciding on ONS type?
- What is your anecdotal experience with using low volume vs regular volume ONS?
- Are there situations where lower volume ONS would be preferred (e.g. in patients with fluid restriction, poor intake/ early satiety, others?)
- Do you have low volume ONS available at your hospital?
- Any barriers to using regular vs low volume ONS?



THANK YOU