

Consumption, satisfaction, and symptoms, and metabolic and nutritional effects of two types of modified texture meals in feeding dysphagic subjects

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BACKGROUND: Long-term hospice dysphagic patients are at risk of malnutrition, often not wanting to consume meals. Difficulties in preparing meals for these patients can include variability in manually prepared recipes, the need for varied and appetizing menus and dishes, and time restrictions for administering food.

AIMS: This study investigated levels of consumption, satisfaction and symptoms, and the resultant metabolic and nutritional effects between patients given one of two texture modified models:

- smoothed dishes prepared traditionally in a kitchen (CF),
- homogenized meals obtained from dehydrated and rehydrated instantaneous preparations by means of special equipment (OI).

MATERIALS AND METHODS: The study is an **observational cohort** of 30 patients aged between 41 – 81 years old with **complex disability, intellectual disabilities, dysmorphism and medium-gravity dysphagia**, and **psychiatric, neurological, gastroenterological and endocrine comorbidities**. Previous to this the patients had followed the **traditional food and feeding method**, although some of them, due to clinical problems, had occasionally been given the new homogenized instantaneous food.

15 patients
CF MENÙ

15 patients
OI MENÙ

T0

BASELINE

Nutritional screening test ⁽¹⁾:

- Anthropometric indices (weight, height, and arm circumference)
- Biochemical indices (cholinesterase, transferrin and albumin),
- Immunologic indices
- Bioimpedance parameters, **R, Xc, phase angle** and **derived body composition** data (BIA 101 – S Akern Firenze)

T1 (2 months)

FU 2

- Consumption of daily meals and aquagel were recorded.
- Dissatisfaction scores were investigated using a modified Chernoff’s scale based on three levels of smiles.
- Symptoms scoring was built by counting the occurrence of symptoms on a weekly basis (0 = never; 14 = always).
- Metabolic and nutritional effects were assessed by changes in anthropometric parameters and in nutritional status were assessed.

Statistical analysis was performed using R.

T2 (4 months)

FU 4

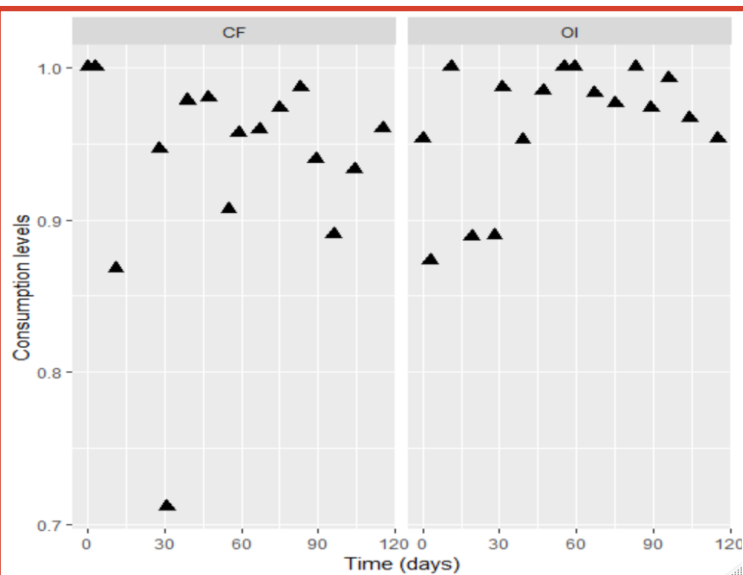


Figure 1. Mean levels of consumption over time

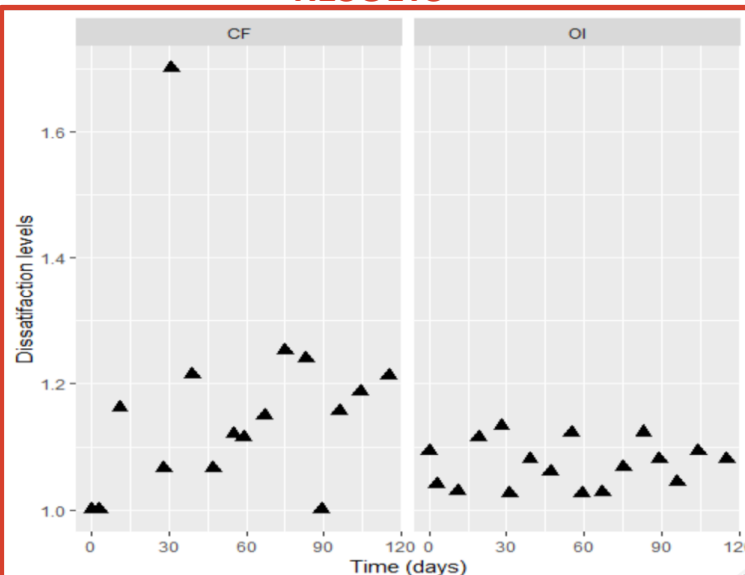


Figure 2. Mean levels of dissatisfaction over time

	T	OI	CF	p-value
Albumin	T0	3.800	4.000	0.067
	T2	3.700	3.700	0.716
Azotemia	T0	20.50	28.00	0.021
	T2	28.00	27.00	0.898
BIA Lean Mass (Kg/m)	T0	24.750	28.500	0.007
	T2	24.000	29.600	<0.001
BIA Fat Mass (Kg/m)	T0	7.250	11.000	0.141
	T2	7.200	7.400	0.338
Hydration (%)	T0	73.000	73.400	0.536
	T2	73.700	73.500	0.278
Lymphocytic count	T0	1.6300	2.4200	0.018
	T2	5.5000	4.7300	0.888
MNA	T0	18.50	17.50	0.324
	T2	20.00	17.50	0.006

Table 1. Median of metabolic and nutritional effects

The comparison between the initial and final observations after 4 months shows a significant increase in **lean mass** and a significant decrease in fat mass in the CF group. The percentage **hydration** is significantly increased only in OI. **Albumin** and **azotemia** increase significantly in OI. In group CF, **albumin** decreases significantly. The **lymphocytic** count increases significantly in OI. The **MNA** significantly increases in the OI group.

Over the entire follow-up period, **mean levels of consumption are significantly higher in the OI group** in comparison to the CF group (p-values <0.001), and **dissatisfaction significantly lower** (p-values <0.001). Analysis of trends over time identified a clear tendency toward improved consumption and greater satisfaction/lower dissatisfaction (Figs. 1 and 2). Significantly lower symptom scores are always evident in the OI group in comparison to the CF group (Table 2).

	CF	OI	p-value
	(N=168)	(N=193)	
Cough	1.10+/-1.23	0.74+/-2.19	<0.001
Increased secretion	0.91+/-1.31	0.53+/-2.15	<0.001
Hoarseness	0.45+/-0.76	0.17+/-0.82	<0.001
Gargling voice	0.12+/-0.43	0.11+/-1.04	0.014
Cough after meals	1.15+/-1.12	0.77+/-2.27	<0.001
Clearing throat	0.38+/-1.18	0.16+/-0.81	<0.001
Packing food in cheeks	0.77+/-2.55	0.28+/-1.60	0.002
Oral and nasal regurgitation	0.095+/-0.350	0.166+/-1.260	0.11
Multiple swallowing for one bite	0.68+/-2.21	0.23+/-1.45	<0.001

Table 2. Mean +/- standard deviation of symptoms scores.

CONCLUSIONS: Analysis of levels of consumption, dissatisfaction scoring and symptoms scoring shows that **patients receiving the modified homogenized instantaneous meal (OI) have overall higher consumption levels, greater satisfaction, and less symptoms than patients receiving traditionally prepared smoothed dishes (CF)**. The **OI method produces a substantial improvement in nutritional status in comparison to CF**, especially with regards to protein framework and phase angle in OI.