Levels of consumption, satisfaction and symptoms relating to two types of meals with modified texture in 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 between patients given one of two texture modified models, (i) smoothed dishes prepared traditionally in a kitchen (CF), and (ii) 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. Fifteen patients were fed the OI menu, and 15 were fed the CF menu. Follow-up was assessed at 2- and -4 months.

Dissatisfaction scores were investigated using a modified Chernoff's scale based on three levels of smiles (the higher the score, the higher the dissatisfaction). Consumption of daily meals (breakfast, lunch, snack, dinner) and aquagel were recorded. Symptoms scoring (0 - 14) has been built by counting the occurrence of symptoms on a weekly basis (0 = never / absences of symptoms; 1 = one symptom per week; 3 = one to two symptoms per week; 10 = one to two symptoms per day; 14 = always). Statistical analysis was performed using R.

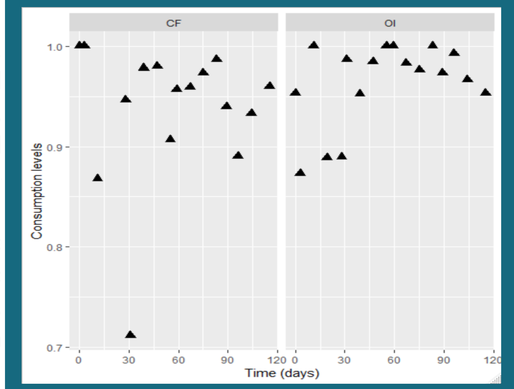

Figure 1. Consumption levels over time.

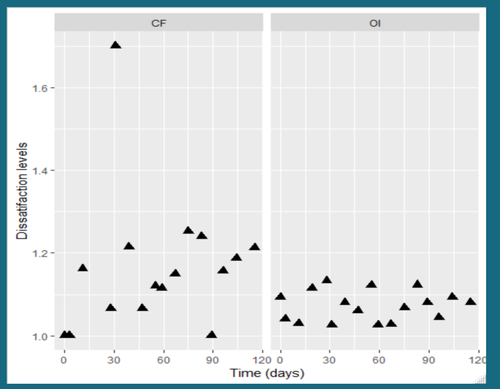

Figure 2. Mean levels of Dissatisfaction over time stratified according to OI and CF group (higher values mean bigger dissatisfaction).

	CF	OI	Combined	p-value
	(N=168)	(N=193)	(N=361)	
Avoids meals	0.00/0.00/0.00 (0.27+/-0.52)	0.00/0.00/0.00 (0.27+/-1.13)	0.00/0.00/0.00 (0.27+/-0.90)	0.083
Nasal reflux	0.000/0.000/0.000 (0.036+/-0.186)	0.000/0.000/0.000 (0.041+/-0.320)	0.000/0.000/0.000 (0.039+/-0.266)	0.4
Cough	0.00/1.00/1.00 (1.10+/-1.23)	0.00/0.00/1.00 (0.74+/-2.19)	0.00/0.00/1.00 (0.91+/-1.82)	<0.001
Increased secretion	0.00/1.00/1.00 (0.91+/-1.31)	0.00/0.00/0.00 (0.53+/-2.15)	0.00/0.00/1.00 (0.71+/-1.82)	<0.001
Hoarseness	0.00/0.00/1.00 (0.45+/-0.76)	0.00/0.00/0.00 (0.17+/-0.82)	0.00/0.00/0.00 (0.30+/-0.80)	<0.001
Gargling voice	0.00/0.00/0.00 (0.12+/-0.43)	0.00/0.00/0.00 (0.11+/-1.04)	0.00/0.00/0.00 (0.12+/-0.81)	0.014
Cough after meals	0.00/1.00/1.00 (1.15+/-1.12)	0.00/0.00/1.00 (0.77+/-2.27)	0.00/0.00/1.00 (0.95+/-1.84)	<0.001
Clearing throat	0.00/0.00/1.00 (0.38+/-1.18)	0.00/0.00/0.00 (0.16+/-0.81)	0.00/0.00/0.00 (0.26+/-1.01)	<0.001
Alternation of facial expression	1.00/3.00/3.00 (3.95+/-3.93)	0.00/0.00/1.00 (0.85+/-2.07)	0.00/1.00/3.00 (2.29+/-3.44)	<0.001
Delay to start swallowing	0.00/0.00/0.00 (0.46+/-1.93)	0.00/0.00/0.00 (0.64+/-2.48)	0.00/0.00/0.00 (0.56+/-2.24)	0.57
Oral and nasal regurgitation	0.000/0.000/0.000 (0.095+/-0.350)	0.000/0.000/0.000 (0.166+/-1.260)	0.000/0.000/0.000 (0.133+/-0.951)	0.11
Packing food in cheeks	0.00/0.00/0.00 (0.77+/-2.55)	0.00/0.00/0.00 (0.28+/-1.60)	0.00/0.00/0.00 (0.51+/-2.11)	0.002
Multiple swallowing for one bite	0.00/0.00/0.00 0.68+/-2.21	0.00/0.00/0.00 (0.23+/-1.45)	0.00/0.00/0.00 (0.44+/-1.86)	<0.001

Table 2. Symptoms scores according to the treatment. Data are I quartile / median / 3 quartile, (mean +/- standard deviation). p-values revert to the difference between groups.

Results

Over the entire follow-up period (4 months), mean levels of consumption are significantly higher in the OI group in comparison to the CF group (p-values <0.001, Table 1), and dissatisfaction significantly lower (p-values <0.001, Table 1). This is also evident when analysis is stratified by meal occasion (Table 1). 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).

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).

	CF	OI	Combined	p-value
Overall				
Satisfaction	1.16+/-0.41	1.07+/-0.33	1.12+/-0.37	<0.001
Consumption	0.94+/-0.18	0.96+/-0.17	0.95+/-0.17	<0.001
Acquagel				
Satisfaction	1.13+/-0.38	1.18+/-0.52	1.16+/-0.45	0.79
Consumption	0.95+/-0.15	0.92+/-0.23	0.94+/-0.20	0.28
Dinner				
Satisfaction	1.23+/-0.48	1.06+/-0.26	1.14+/-0.39	<0.001
Consumption	0.92+/-0.20	0.97+/-0.15	0.95+/-0.18	<0.001
Breakfast				
Satisfaction	1.09+/-0.31	1.03+/-0.19	1.06+/-0.26	0.004
Consumption	0.96+/-0.13	0.98+/-0.11	0.97+/-0.12	0.037
Snack				
Satisfaction	1.18+/-0.44	1.05+/-0.29	1.11+/-0.37	<0.001
Consumption	0.95+/-0.15	0.96+/-0.17	0.96+/-0.16	0.091
Lunch (unique meal)				
Satisfaction	1.17+/-0.40	1.05+/-0.27	1.11+/-0.35	<0.001
Consumption	0.91+/-0.21	0.96+/-0.17	0.94+/-0.19	0.004

Table 1. Dissatisfaction and consumption levels overall over the entire follow-up period (2550 observations). Data are means and standard deviations. p-values refer to the difference between OI and CF groups.

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