

An Exploratory Study: Clinical Dietitians Do Not View the Full Liquid Diet as Best Practice for the Post-operative Patient

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Abstract

Background: The full liquid diet has been used as a transitional diet for the past 100 years. The current dietary advancements in a clinical setting include transitioning from nil per Os (NPO) to a clear liquid diet, to a full liquid diet and to a regular diet or diet as tolerated prior to discharge. The full liquid diet contains mainly milk and milk products including pudding, ice cream, oatmeal, cream of wheat, cream based soups, and any other liquid foods allowed on the clear liquid diet.

Objective: To determine the opinions of clinical dietitians on the use of the full liquid diet.

Design: Exploratory, qualitative study. An electronic survey using Qualtrics Survey Software was sent through the Medical Nutrition Dietetic Practice Group. Survey results were analyzed using Statistical Package for the Social Sciences (IBM SPSS Statistics 20).

Participants: All members of the Medical Nutrition Dietetic Practice Group (MNDPG) were invited to participate in the survey. A total of 1914 dietitians are members of the MNDPG.

Main outcome measures: To analyze the responses of clinical dietitians on the use of the full liquid diet.

Statistical analyses performed: Chi-Squared test, means including average, mode, median, and percentages.

Results: Of the 1,914 surveys delivered, 25 responses were collected. The final usable samples included 24 RDs of which 100% were female, 48% worked in a Community Hospital, 40% specialized in General Medicine, and the average number of years as a practicing RD was 13.5 years. Exactly half of the RDs believe that a solid-food diet would be well tolerated by post-operative patients and half of the RDs believe that a solid-food diet would not be well tolerated. In response to the full liquid diet having a positive contribution to the care of the post-operative GI patient, 7/24 responded with yes, 11/24 responded no and 6/24 responded with "other."

Conclusions: This study provided insight into the current practicing members of the MNDPG relative to the use of the full liquid diet. Future studies are advised to more precisely examine the use of the full liquid diet, the education of physicians on the ordering of diets, and to reassess the use of the full liquid diet pertaining to the fact that dietitians are now allowed to make diet orders.

Keywords: Clinical; Dietitians; Diet; Liquid diet

Introduction

The full liquid diet has been used as a transitional diet for the past 100 years [1]. A full liquid diet contains foods that are liquid, or liquefy at room temperature, and are commonly prescribed to patients post-operatively in the hospital setting [2]. The current dietary advancements in many clinical settings include transitioning from nil per Os (NPO) to a clear liquid diet, to a full liquid diet and to a regular diet or diet as tolerated prior to discharge.

The full liquid diet contains mainly milk and milk-based products including pudding, ice cream, oatmeal, cream of wheat, cream based soups, and any other liquid foods allowed on the clear liquid diet. The use of the full liquid diet is not recommended for greater than one to three days without additional supplements prescribed by registered dietitians (RDs) [2].

Malnutrition, and the prevention of further malnutrition, is a primary concern of RDs working with post-operative patients. It is most common in patients admitted for surgical management or gastrointestinal (GI) surgeries [1,2]. A total of 25-50% of general medicine or general surgery patients' exhibits protein-calorie malnutrition. Some of these patients are malnourished upon admission; however, many develop the condition during the hospital stay. Diet restrictions exacerbate malnutrition and delay both discharge and

healing. It is recommended to transition from a clear liquid diet to a solid-food or regular diet without prescribing the full liquid diet to ensure the patient is receiving adequate nutrition during a time when nutritional needs are significantly higher [2].

Patient satisfaction is of high concern to RDs. It was revealed that 98% of patients perceive the full liquid diet to be unsatisfactory [3]. A randomized control trial involving patients with intra-abdominal surgery revealed that consuming regular food items post-operatively could stimulate bowel peristalsis and the return of bowel function [4]. Advising patients to eat what appeals to them which leads to increased patient satisfaction.

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Recent surveys have indicated that when patients are presented with a self-select menu, solid foods are tolerated sooner than those following the conventional dietary transition process [5]. The food items most commonly selected that are not available on a full liquid diet included eggs, toast, potatoes, fresh fruit and cooked vegetables. A clinical trial with patients admitted for pancreatitis compared the use of a soft diet to a clear liquid diet [6]. The results indicated an average decrease in length of stay (LOS) of by two days within the soft diet group. In addition, this group consumed a larger amount of calories and fat. A patient survey was given to short-stay orthopedic surgery patients to examine the first two meals served post-operatively [3]. The significance of this survey revealed that early introduction to solid foods can enhance surgical recovery, decrease LOS, and provide a feasible and safe nutritional strategy for the patient.

Similarly, a prospective randomized trial comparing a clear liquid diet versus a low-fat solid diet for pancreatitis patients revealed no significant difference between the two diets when measuring nausea, length of stay or readmission rates [7]. The trial concluded that initiating nutrition in pancreatitis patients with a low-fat solid diet provided more calories and fat, and is considered an appropriate option for post-operative patients who have higher nutritional needs.

The purpose of this exploratory study is to examine the opinions of RDs on the use of the full liquid diet. There is currently no evidence supporting the use of the full liquid diet, and there is some evidence that the full liquid diet is not the best choice for post-operative patients.

Methodology

The design for this study was an exploratory study. Saint Louis University Institutional Review Board deemed this study protocol to be exempt. This study was deemed exempt under federal regulation 45 46.101 (b) CFR.

The survey distribution through The Academy of Nutrition and Dietetics (AND) was approved in May 2014, and one Dietetic Practice Group (DPG) was used for the population of RDs surveyed. The DPG selected for the study was the Medical Nutrition DPG (MNDPG). The MNDPG includes a high population of dietitians working with post-operative patients in the clinical setting, and best represents the current diet transition most utilized. The general format of the survey was adapted from a survey created by Sophia Yeung and Tanis Fenton in 2009. Qualtrics Survey Software was used to construct the survey. The survey was sent to 1,914 RDs using the MNDPG list-serve, and a total of 25 responses were collected. All identifiable information was removed prior to analyzing data and anonymity was maintained with the utilization of the list-serve. One survey was excluded as the dietitian was retired, and all other completed surveys were used for data analysis.

A survey was sent to the AND for approval and face validity, and minor changes be made based on the suggestions from the MNDPG. The Qualtrics survey was distributed from a recruitment statement with a link to the survey. Two reminder recruitment statement emails were sent through the list-serve over a three-week period. One email was sent as an E-Blast by the AND to the MNDPG, and one email was sent through the MNDPG list-serve.

The Statistical Package for the Social Sciences (IBM SPSS Statistics 20) was used for all analyses. Descriptive statistics were calculated for gender, place of employment, and the number of years as a practicing dietitian, area of specificity, and the influence of the full liquid diet on patient care to determine the demographics of the population surveyed and opinions on the full liquid diet. Variables of responses

were analyzed and described using means, frequencies, percentages, and one-sample Chi-Square Tests. Qualitative data are represented in the data analysis.

Results

Of the 1,914 surveys delivered, 25 responses were collected. After screening the results, the final usable samples included 24 RDs, of which all 24 responders were female, 11/25 worked in a Community Hospital, 10/25 specialized in General Medicine, and the average number of years as a practicing RD was 13.5 years. The number of years indicated as a practicing dietitian ranged from 1 year to 40 years, with an average of 13.5 years. See Table 1 for complete analysis of the demographic data of the surveyed participants.

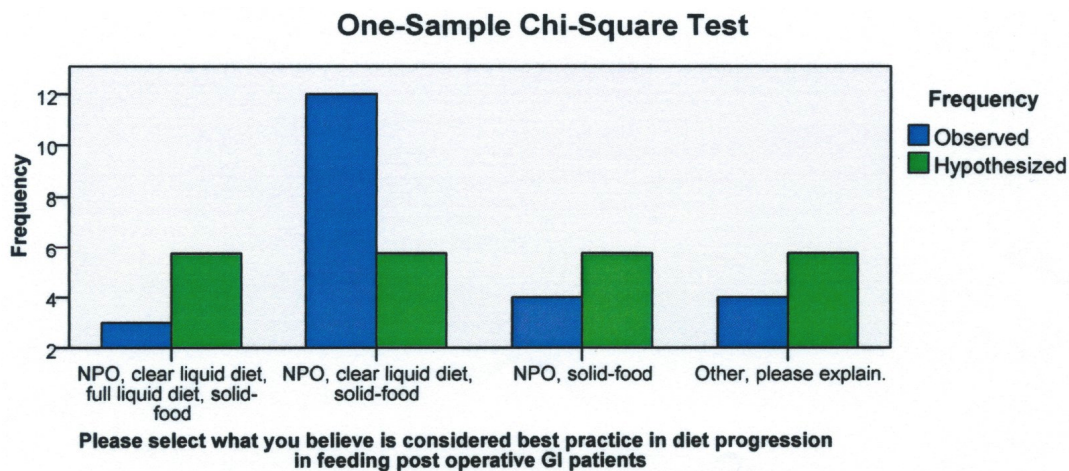
The diet recommendation for immediately post-operative GI patients with a total of 22 responses indicated 6/22 would recommend a solid-food diet, 1/22 would recommend a full-liquid diet, 5/22 would recommend a clear liquid diet and 10/22 recommended "other." The responses for "other" included the physician makes the diet orders, the dietitian did not work with post-operative patients, low fiber, and a recommended combination of solid-food and clear-liquid diet.

Exactly half of the 22 RDs believed that a solid-food diet would be well tolerated by post-operative patients and half of the RDs believe that a solid-food diet would not be well tolerated by post-operative patients. Most of the RDs reported that patients have a general idea of what foods they can tolerate and the diet should be individualized. Many recommended a clear liquid diet followed by a solid food diet if the patient tolerates the clear liquid diet.

The diet progression that was seen as best practice for post-operative patients for the 24 responses resulted in 13/24 preferring NPO, clear liquid diet, solid food diet. See Figures 1 and 2 for the preferred diet progression by the population surveyed. A one-sample Chi-Squared goodness of fit test was conducted with assumption of even distribution

		Number of Participants	Percentage of Participants
Facility	Community Hospital	11	44
	Trauma Center	1	4
	Rehab Facility	1	4
	Teaching Hospital	3	12
	Long-Term Care Facility	1	4
	Government Hospital	1	4
	Other (Public Health Department, Private Practice, Self Employed)	7	28
Area of Specialty	General Medicine	10	40
	Nutrition Support	2	8
	ICU/SICU	3	12
	Diabetes	1	4
	Gastrointestinal	1	4
	Geriatrics	1	4
	Pediatrics	2	8
	Cardiology	1	4
	HIV/AIDS	2	8
	Private Practice	1	4
	Burn/Wound	1	4
Number of Years as a Dietitian	<1-5 years	8	33
	6-10 years	4	17
	11-15 years	0	0
	>15 years	12	50

Table 1: Demographic information of surveyed participants.



Total N	23
Test Statistic	9.174
Degrees of Freedom	3
Asymptotic Sig. (2-sided test)	.027

1. There are 0 cells (0%) with expected values less than 5. The minimum expected value is 5.750.

Figure 1: One-sample Chi-Squared test for best practice for diet progression in the post-operative patient.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The categories of Please select what you believe is considered best practice in diet progression in feeding post operative GI patients occur with equal probabilities.	One-Sample Chi-Square Test	.027	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 2: Hypothesis test summary for best practice for diet progression in post-operative patients.

across all responses. In the analysis, the categories of “NPO, full liquid diet, solid food diet” and “NPO, solid food diet” were collapsed into one category. The results were statistically significant ($X^2(3)=9.174$, $p=.027$) indicating the results were not equally distributed with response item 2 (NPO, clear liquid diet, solid food diet) being the most frequently chosen. A majority of the RDs in this study did not recommend the use of the full liquid diet for post-operative GI patients. Other RDs responded that the diet progression is dependent upon the surgical procedure and should be individualized to the patient.

In the 24 responses to if the full liquid diet having a positive contribution to the care of the post-operative GI patient, 7/24 responded with yes, 11/24 responded no and 6/24 said “other.” The

“other” responses included not area of expertise and the diet should be individualized to the patient needs. Refer to Figure 3 for results.

Discussion

The Nutrition Care Manual (NCM) is a resource utilized by RDs, dietetic technicians, registered (DTRs) and allied health professionals on the therapeutic diet and professional practice manuals. The NCM states that the full liquid diet provides sufficient energy, fat and protein and is inadequate in vitamins, minerals and fiber. It goes on to state that the full liquid diet is appropriate only for short-term use, but is contraindicated for those with lactose intolerance, for the patients who can tolerate solid foods, and for patients who cannot tolerate thin

#	Answer		Response	%
1	Yes		7	29%
2	No		11	46%
3	Other, please comment.		6	25%
	Total		24	100%

Figure 3: Represents the number of RDs that do not believe that the full liquid diet has a positive contribution to the care of the post-operative patient.

liquids. There is no data supporting the use of the full liquid diet as part of the post-operative diet transition, and its practice is no longer widely advocated or used [8]. A majority of the RDs (13/24) would recommend bypassing the full liquid diet in diet progression. It was also shared that diet progression should be individualized to the patient and procedure they underwent.

Warren reviewed a recent survey study of post-operative colorectal patients and diet advancement and it was shown that 73% of the patients preferred regular soup, eggs, toast or potatoes when given the option for a self-select menu, while only 23-56% reported preferring clear broth, gelatin and carbonated beverages. It was noted that a regular diet significantly increases the caloric and protein intake by the patients and is often more palatable. Factors including inflammation and pain impact appetite, and in the survey by Yeung and Fenton, patients with the most severe pain preferred toast and potatoes, and while those with the least severe pain preferred eggs and regular broth. He concluded that there is a potential for significant benefits associated with beginning a regular diet earlier to increase calorie intake, reduce weight loss and protein catabolism, decrease the LOS and improve patient satisfaction. The choice of initial diet immediately post-operation has been less studied and there is no clear evidence suggesting a benefit from following the traditional diet advancement protocol, additionally there was no mention of the full liquid diet being utilized [9]. The previously referenced research articles support the need for future studies on the diet progression for post-operative patients. A majority of the RDs surveyed do not consider the full liquid diet to have a positive contribution to patient care; it was suggested that if a patient can tolerate clear liquids, it is likely they can tolerate a soft-food diet instead of a full liquid diet. The diet is not suitable for those with lactose intolerance, and lactose intolerance is often seen in post-operative patients. Some dietitians do not recommend the diet because it is not evidenced-based. The survey revealed there are current practitioners that do not support or advocate the full liquid diet, and that diet progression should be individualized to the patient.

Limitations

Limitations were present in this research and pertained mostly to the methods used and small sample size. For example, the decision to use one DPG for the study limits the ability to generalize the findings due to lack of participation from other RDs working in a clinical setting with post-operative GI patients. By utilizing a greater number of DPGs, a larger population could be surveyed. Gathering information about opinions on the full liquid diet could be sensitive to some of the participants who may not have wanted to share their opinion. The low response rate from the DPG may be a result of include lack of time, the survey distribution during summer months and the possibility of the RDs vacationing, relevance of the survey to area of practice, or the email may have been filed under SPAM or Junk inbox.

The use of an online survey is also a limitation, as the response rate for e-mailed surveys varies from 6% to 75%. Previous research studies

on web-based surveys indicated that higher response rates are found with paper-based surveys; the use of web-based surveys is becoming increasingly popular as the overall costs of the surveys is significantly less than using a paper format and the initial response rate is several days faster. It was suggested to use both web-based and paper-format of surveys to receive the greatest response rate [10]. The response rate for this survey was 1.3% with a total of 25 responses of 1,914 surveys sent.

Conclusions

This study provided insight into the current practice of members of the MNDPG relative to their use of the full liquid diet. Transitioning from a post-operative clear liquid diet directly to a solid-food regular diet may decrease malnutrition; patients may tolerate solid foods more quickly, may decrease LOS and may increase patient satisfaction. Among the RDs who participated in this study, a majority, 11/24 (46%), responded that the full-liquid diet does not have a positive contribution to patient care, and that diet progression should be individualized to the patient as opposed to following the traditional diet transition. The Centers for Medicare and Medicaid Services (CMS) recently announced the final rule on Therapeutic Diet Orders, which states that dietitians may independently carry out diet orders; this could stimulate the discontinuation of the full liquid diet [9].

In the survey questions pertaining to whether a solid-food diet would be well tolerated by post-operative GI patients immediately after surgery, 13/22 (59%) of the responders indicated that the diet ordered should be individualized to the patient and the particular procedure they underwent. This reveals the need to research what diet the RDs or physicians are commonly ordering immediately post-operation, and whether or not the traditional diet progression is still being followed. Secondly, the diet progression that was considered to be best practice was NPO, clear liquid, to solid food diet, bypassing the ordering of the full liquid diet; the majority of RDs surveyed did not view the full liquid diet as necessary for the care of the post-operative patient.

This research lays the groundwork for future studies that can more precisely examine the use of the full liquid diet, the education of physicians on ordering diets, and the use of the full liquid diet, ensuing the new law allowing dietitians to independently order diets. Bypassing the full liquid diet could decrease malnutrition, duration of hospital stay, improve patient satisfaction and overall quality of patient care. There is currently no evidence the full liquid diet is necessary, some evidence that the diet is not best choice; future studies could assimilate a standardized diet progression for post-operative patients.

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