

Evaluation of the Benefits of Gastric Tube Feeding in an Elderly Population

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Objective: To assess the benefits of gastric tube feeding in an elderly community hospital population.

Subjects: One hundred consecutive patients who required feeding gastrostomies from July 1984 through June 1987.

Setting: Durham (NC) Regional Hospital, a 380-bed community hospital.

Methods: Patients were evaluated using a quality of life scale (QL scale) adapted from Spitzer's QL Index. The evaluation was based on hospital records at the time of tube placement and interviews with patients or family members at follow-up between June 1991 and March 1992. Subjective evaluation of the benefits of gastric tube feeding were obtained in interviews with patients or their families at follow-up.

Results: Overall there was no significant change in the objective evaluation of quality of life at follow-up. Men, patients over 76 years of age, and patients with chronic illnesses such as multiple strokes or dementia showed the

poorest response on the QL scale. Subjective evaluation by patients or their family members was positively correlated with objective evaluation on the QL scale. Family members of patients who showed the poorest response on the QL scale were more likely than other family members to respond no to the question, "Would you want this done to you if you were in his/her situation?"

Conclusions: Our QL scale provides a good indication of patients' and family members' subjective evaluation of the benefits of gastrostomy tube feeding after 4 to 8 years. Thus, the scale should be helpful to physicians who must consult with patients and their families and make decisions about the use of this procedure. The significant discrepancy between family members' evaluations of the benefit of the procedure to the patient and their refusal of the procedure for themselves if they were in the patient's situation confirms the need for advance directives and the importance of conscientious implementation of the Patient Self Determination Act of 1990.

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THE ETHICAL, legal, and moral questions surrounding long-term artificial feeding of the elderly continue to mount.¹⁻⁵ Because these questions pertain to personal values and subjective issues of the prolongation of life, the need remains for a more objective evaluation of the benefits of this procedure. A recent report by the Office of Technology Assessment in the US Congress investigated the effectiveness of forced feeding of the elderly and concluded, "The obvious solution to this problem is research that demonstrates the effectiveness of tube feeding and TPN [total parenteral nutrition] for elderly people."⁶

The purpose of this study was to eval-

uate the potential benefits of gastric tube feeding in a population of 100 consecutive patients in a community hospital setting. Two new methods of evaluation were employed: a quality of life scale (QL scale) adapted from the QL Index of Spitzer et al⁷ and follow-up personal interviews with the patient or, if the patient had died, a close relative. By evaluating gastric tube feeding both objectively and subjectively in an elderly population, we hoped to develop

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PATIENTS AND METHODS

One hundred consecutive patients between 22 and 97 years of age, from July 1984 through June 1987, who underwent feeding gastrostomy in Durham (NC) Regional Hospital were included in the study. Seventeen of these patients who could not be found for follow-up were excluded from analysis. Both percutaneous and operative gastrostomies were included. Data collected included age, gender, race, date of tube placement, and the major diagnosis that led to placement. Patients were also divided into one of the following three diagnostic categories based on the major reason for tube placement: category 1, acute central nervous system disease such as acute stroke or head trauma; category 2, chronic illness such as previous multiple strokes or dementia; and category 3, gastrointestinal tract dysfunction such as gastrointestinal tract trauma or esophageal stricture.

Because of the overall poor condition of many of these patients and our inability to find an acceptable QL scale, the Spitzer QL Index was modified as illustrated in the **Figure**. A yes response to any one of these questions gave the patient a score of 2; a no response, a score of 1. The best possible score on our modified scale was 12; the worst score, 6.

The QL scale score was determined for each patient twice during the study: at initial tube placement and at the time of follow-up. At initial tube placement, data from the hospital chart were used to determine the QL scale score. At follow-up, the QL scale score was determined from information obtained at the interview with the family.

Subjective quality of life assessment was obtained from an interview with the patient or a close relative. All follow-up interviews were done between June 1991 and March 1992. The patient or the family was contacted directly by telephone. After being informed of the purpose of the call, four questions were asked of the respondent: (1) Did the procedure benefit the patient? (2) Did the procedure improve the patient's quality of life? (3) Would you want this done to you if you were in his or her position? and (4) Would you recommend this approach to others?

The respondents were asked to answer these questions based on the current condition of the patient, or, if the patient had died, on the relative's recollection of the patient's condition before death. Respondents were asked to answer yes or no, since other answers could not be used in the analysis. Appropriate apologies were given for requiring such simple responses to very complex questions. The results of the objective assessment based on the QL scale, and the subjective evaluation based on the four questions were then compared.

Statistical analysis was performed using the SAS systems (SAS Institute, Cary, NC).

criteria for predicting the potential benefits of the procedure for different types of patients and thus assist physicians, patients, and families in making decisions about the use of the procedure.

RESULTS

Eighty-three patients form the basis of this report. Fifty-one (61%) of the study patients were women, with a median age of 76 years. At follow-up only 26 patients (31%) were alive: 17 (43%) of the 40 study patients in the group under 76 years of age and nine (21%) of the 43 patients in the group 76 years of age and over.

OBJECTIVE MEASUREMENT OF QUALITY OF LIFE

The mean QL scale scores for the group as a whole were 8.6 at tube placement and 8.7 at follow-up. Thus, there was no significant difference in quality of life as measured by our QL scale (**Table 1**). Using our QL scale, 23 patients (28%) became worse, 31 patients (37%) remained the same, and 29 patients (35%) improved in the objective measurement of their quality of life during the follow-up period.

Several subgroups were then analyzed to better understand the factors influencing response to feeding gastrostomy. Results from such subgroup analyses should be approached with caution, however, since sample size became small in many cases and multiple comparisons have been made.

Among the 40 patients younger than 76 years of age, the median age of the group, only eight patients (20%) showed worse QL scale scores on our objective scale, while 15 (38%) showed no change, and 17 (43%) showed improved scores. The mean change in QL scale score for this group was 0.46. In the 43 patients 76 years of age and older, the results of gastric tube feeding were not as promising. In this group, 15 patients (35%) showed worse QL scale scores, 16 (37%) remained the same, and 12 (28%) showed improved scores with a mean change in the QL scale score of -0.27 .

If analyzed by diagnostic category, the 24 patients in category 2 fared the worst while receiving this therapy. Only seven patients (29%) improved, while six (25%) remained the same, and 11 (46%) became worse on our QL scale. The mean change in QL score for this group was -0.48 .

When patients were analyzed by gender, men had poorer outcomes, with 11 (34%) of the 32 men showing worse QL scale scores at follow-up compared with only 12 (24%) of the 51 women.

SUBJECTIVE MEASUREMENT OF QUALITY OF LIFE

In the overall response to the four questions, 61 patients and relatives who responded (75%) said that the proce-

Questions Asked to Determine Quality of Life	Y/N
Usually oriented to time, place, and/or persons	
Able to converse	
Able to ambulate	
Able to do simple self-care tasks	
Continent	
No bed sores	
Total: (Y=2; N=1)	

Quality of Life Scale for gastrostomy patients. Y indicates a yes response; N, a no response.

procedure benefited the patient, 54 (68%) said that the procedure improved the patient's quality of life, 39 (51%) said they would want this done to them if they were in the patient's position, and 50 (63%) would recommend this to another person if he or she was in the patient's position.

If analyzed by various subgroups, it is noteworthy that only 16 of those responding (41%) for the group 76 years of age and older would want the procedure done to them if they were in the patient's position. In addition, in diagnostic category 2, the group that had the poorest overall response to gastric tube feeding as measured by the QL scale, only six of those who responded (27%) when asked said they would have wanted the procedure done to themselves if they were in the patient's situation. As shown in Table 1, this group had the highest proportion of negative responses to all four questions.

Fifty-three percent of all respondents gave at least one negative response. At least one negative response was present for 28 of those patients 76 years of age and older (65%), but the response was negative for only 16 patients

(40%) under 76 years of age. Negative responses to questions were more common for male than female patients. Men also had poorer results as measured by the objective QL scale.

COMMENT

In our group of 83 patients with feeding gastrostomies, objective evaluation using our adaptation of the new QL scale demonstrated a broad distribution of response to therapy when percentages were analyzed overall or by age, gender, or diagnosis. These results are similar to results reported by other investigators.^{8,9} When our QL scale scores are compared with the subjective answers to our questions, however, there seems to be a rough but consistent correlation that clarifies the question of whether these patients benefited from the gastrostomy procedure.

The scores for patients 76 years of age (the median age of the sample) and older were worse than for younger patients as measured by the objective QL scale, and there were more negative responses from the patients or their family members to the four subjective questions about the benefits of the procedure. Men and patients in diagnostic category 2 also did worse by both measures. Even though there were more men in the group under 76 years of age, this group fared better with the procedure. The subjective evaluation of these patients' response to the procedure was positively correlated with the objective measure of their response and showed a higher proportion of negative responses (**Table 2**).

Because of these general correlations, it appears that our QL scale may be useful to physicians in predicting the response to the procedure and thus useful to physicians, patients, and families in deciding whether to initiate it. In the case of severely debilitated chronically ill

Table 1. Measurements of Objective (Scale) and Subjective (Questions) Responses to Gastric Tube Feeding*

Group	Objective Responses			Subjective Responses			
	Quality of Life Scale, %			Questions Answered No, %			
	Worse	No Change	Improved	1	2	3	4
Overall	28	37	35	25	32	49	37
Age, y							
<76 (n=40)	20	38	43	11	14	39	26
≥76 (n=43)	35	37	28	37	49	59	46
Sex							
M (n=32)	34	34	32	29	37	55	42
F (n=51)	24	39	37	22	30	46	33
Diagnostic category							
1 (n=46)	20	37	43	23	34	47	30
2 (n=24)	46	25	29	42	46	73	58
3 (n=13)	23	62	15	0	0	17	18

*Diagnostic categories and questions asked are described in "Patients and Methods" section. Percentages have been rounded, so numbers may not add up to 100. Among the subjective responses, percentages reflect a varying rate of nonresponse to each question.

Table 2. Mean Change in Quality of Life (QL) Scale Score Compared With Question 3*

Group	Mean Change in QL Score	% Answering No to Question 3
Age \geq 76	-0.27	59
Diagnostic group 2	-0.48	73
Men	-0.19	55

*Diagnostic group 2 and question 3 are described in the "Patients and Methods" section.

patients, the limited benefits of the procedure may not justify its use.

Probably the most probing subjective question of the four used in this study was, "Would you want this done to you if you were in the patient's position?" This question, in particular, focuses the treatment on the respondents, forcing them to personalize the situation and to place themselves in the patient's position. Of all family members asked, 44 family members who responded (49%) asked would not want this procedure done to them. Even more significant may be the observation that, among the patients in the group 76 years of age and older, 27 of the family members who responded (59%) would not want it done to them and among patients in diagnostic category 2, 18 of the family members who responded (73%) would not want it done to them. Contrasting the fact that, of all the family members asked, 61 who responded (75%) believed that the procedure benefited the patient, one must conclude that there is a vast difference in what one would recommend for others and for oneself. This may simply illustrate the importance of preparatory discussion with patients, at a time when they have full faculties, of their personal desires for nutritional support and of the particular circumstances under which they would want that support given or withheld. This also confirms and reinforces the need for the Patient Self Determination Act of 1990¹⁰ and for discussion of living wills and medical directives at a time when patients can declare what they would want done to themselves.

We note that the validity of patient and family responses to the four subjective questions is uncertain. Family members or patients were questioned over the telephone by strangers and asked questions about experiences that had been personal and frequently painful. Obtaining an honest response under these circumstances may be somewhat difficult.

We believed that the respondents tended to "open up" more as the interviews became longer and that their answers tended to become more negative as the interviews progressed. We believe that it is difficult for pa-

tients and families to realize or admit after the fact that an "incorrect" decision to pursue gastric tube feeding may have been made and that respondents avoided this admission whenever possible. Thus, the observed negative responses probably underestimate the true extent of negative assessments of the benefits of the procedure. This effect was probably least pronounced in responses to the question about whether the respondent would want this treatment for himself or herself, and as noted earlier, the overall preponderance of answers to this question were negative.

Finally, we believe that this study reemphasizes, from a new perspective, the need for advance directives. It also supports the use of the Patient Self Determination Act of 1990 in clarifying the personal desires of each patient, particularly for those over 76 years of age. Having 59% of family members in the group of patients 76 years of age and older not want a therapy received by the patient done to them seems to raise the ultimate question of just what are we doing to our patients? If specific informed consent forms for this particular procedure were instituted in hospitals, it might help to improve communication and eliminate the measurable disparity of satisfaction with treatment that we observed in our study.

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