

Feeding practice in acute stroke patients in a tertiary care hospital

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Abstract

Background: Feeding is a basic component of care and it is the most common and difficult management issue for stroke patients. **Objective** of this study was to know the practice of feeding (oral & nasogastric tube feeding), different types of food used and their caloric value in stroke patients. **Materials & Methods:** This direct observational study was done from June 2010 to November 2010, in different medicine wards of Dhaka Medical College Hospital, and included 100 acute stroke patients confirmed by CT scan or MRI of brain and duration of hospital stay for at least 24 hours. **Results:** Out of 100 cases, 22% took their feeding orally and 78% cases through nasogastric tube. Artificial milk powder 66% cases (NG tube vs. Orally, 58% vs. 8%), juice 18% (NG tube 13% vs. orally 5%), horlicks & juice & soup 10% (NG tube vs. Orally, 7% vs. 3%), khichury 2% orally, bread & egg & shuji 4% cases orally. In 100 cases studied, none of them fulfilled the calorie requirement up to the standard level according to the guideline of Nutrition & Food Science Institute, of Dhaka University, Bangladesh. **Conclusion:** Though this study was small scale but the magnitude of under nutrition among stroke patients revealed is alarming and needs urgent attention.

Introduction

Stroke is a common medical emergency with an annual incidence of between 180 and 300 per 100000 and in many developing countries the incidence is rising due to less healthy life styles¹. Undernutrition is a common problem and is poorly recognized in hospital setting. It has been seen that 1/3 of patients are affected by moderate or severe malnutrition on admission and elderly are particularly at greater risk². Underlying causes leading to poor nutritional intake are many which includes reduced conscious level, an unsafe swallow, arm or facial weakness, poor mobility and ill fitting dentures. Malnutrition in acute stroke is associated with increased prevalence of complication, impaired immunologic function and a higher mortality rate³⁻⁵. Appropriate nutritional support reduces complications and mortality in stroke patients⁶. stroke patients make up a major bulk of admission in most tertiary hospitals. In our centre alone, a total of almost 4000 patients were admitted with stroke which made up to 14% of total admitted patients in medicine in 2009⁷. But unfortunately still today, nutritional aspect of stroke patients is a neglected field in Bangladesh. This study was conducted to find out the feeding practice in acute stroke patients in a tertiary hospital to have a peek into the actual scenario.

Materials & Methods

This direct observational study was carried out in randomly selected 100 acute stroke patients from June 2010 to November 2010 in different medicine wards of Dhaka Medical College Hospital and included those patients who gave informed written consent & stayed in hospital for at least 24 hours. Stroke was confirmed by CT scan or MRI of brain. All data were recorded in pre formed data sheet. The calorie value of different food items were calculated according to the guideline of Nutrition & Food Science Institute, Dhaka University, Bangladesh.

Calorie value of some foods (Nutrition & Food Science Institute, Dhaka University)

Name of food (100 gm)	Calorie value (kcal)
Milk powder	496
Shuji	348
Rice	365
Coarse flour	341
Lentil	343
Egg	177
Potato	97
Mustard oil	900
Vegetable	43
Barley	336
Chicken	109
Mustard oil	900
Artificial Juice	48

Results

Out of 100 cases, 78% took feeding with nasogastric tube and 22% orally. They took different items of food which were, artificial milk powder 66%, juice 18%, horlicks & juice & soup 10%, others were 6% cases (bread, egg, shuji, khichury) (Table-I). Most of the cases did not fulfill the calorie requirement upto the standard level according to the guideline of Nutrition and Food Science Institute, Dhaka University, Bangladesh shown in table-II and table-III.

Table I is showing Different patterns of feeding practice and types of food used among stroke patients where majority were fed by nasogastric tube (78%) and most patient using artificial milk powder (58%).

Table I: Pattern of feeding & different items of food used (n = 100)

Items of food	Nasogastric tube (78%)	Orally (22%)
Artificial milk Powder	58	8
Artificial juice	13	5
Horlicks ¹ & juice & Soup(chicken)	7	3
Bread & egg & shuj ²	0	4
Khichury ³	0	2

1. Horlicks – Malted Barley, Wheat Flour, Sugar, Milk
2. Shuji – Rice based diet
3. Khichury – Rice, Lentils, Mustard Oil

Table II is showing different pattern of feeding practice in stroke patients.

Table II: Different practice of feeding

Pattern of Feeding	Food Items	No. of cases	No of T.S.F	Water (Avg.)	Times/day
Nasogastric Tube	Milk	8	6	200 ml	10
	powder	50	4	150 ml	5
	Juice	13	-	100 ml	4
	Horlicks	7	-	100 ml	2
	Juice	7	-	100 ml	4
	Soup	7	-	100 ml	2
Orally	Milk				
	Powder	8	3	100 ml	4
	Juice	5	-	150 ml	5
	Horlicks	3	3	100 ml	3
	Juice	3	-	100 ml	5
	Soup	3	-	100 ml	2
	Khichury	2	-	150 ml	2
	Bread	4	-	2 piece	2
	Egg	4	-	1 piece	2
	Suji	4	-	150 ml	2

Table III Showing gross discrepancy between actual requirement and calorie provided to the patients of stroke patients. Here standard requirement is around 2000k/cal/d.

Table III: Discrepancy between actual demand and consumption in respect of calorie value

Feeding Pattern	Type of Food	Calorie consumed (Appx.)	Calorie deficit(Appx.)
Nasogastric feeding			
	Milk	852	1148
	Juice	191	808
	Horlicks & Juice & Soup	1083	917
Orally			
	Milk	133.32	1866.68
	Juice	350	1650
	Horlicks & Juice & soup	1237.5	762.5
	Khichury	966	1034
	Bread & Egg & Shuji	754.5	1245.5

Table IV showing causes underlying the inadequate replacement where most attendants pointing lack of food suitable for stroke patients (90%) as the cause.

Table IV: Underlying cause of inadequate calorie replacement

Cause of undernutrition	Percentage
Lack of availability of diet	90%
Party Ignorance	70%
Poverty	70%
Poor Instruction by doctors	50%

Discussion

Feeding is the most common and difficult management issue for stroke patients. Davalos and colleagues in Spain showed that patients with stroke have a greater stress response (based on serum cortisol level) than those with milder stroke and associated with deterioration in nutritional status. In this study, 54 cases were totally unconscious and took feeding through nasogastric tube. Another 24 cases out of remaining 46 cases took feeding through nasogastric tube due to inability to swallow completely despite being conscious. Remaining 22 cases took feed orally with low amount. Up to 50% patients are unable to swallow safely due to stroke. In most studies, deterioration in nutrition occurred more often in dysphagic patients or in those who need help with feeding⁹⁻¹². Patients who are capable of swallowing liquids and food may have a poor appetite because of the effects of intercurrent illness or medication and they may eat more slowly or be less keen to eat because of facial weakness, lack of dentures or poor arm function¹³. In our study we found that a majority of our subjects were receiving nasogastric feeding (78%) (Table I).

About a fifth of patients with acute stroke are malnourished on admission to hospital¹⁴. Stroke patients with poor nutritional status may worsen during hospital admission as well^{8,11,12,15,16}. It has been related to eating problems, age, poor nutritional status on admission and immobilization in patients with impaired functional capacity^{12,17}.

Acute stroke must be considered moderately hypercatabolic and since catabolic disease alters body composition rapidly, gradual shrinkage of body fat and body cell mass compartment occurs¹⁸. It modifies the metabolism of carbohydrate and every aspect of the immune system is damaged by inadequate nutrition and stress reaction^{6,19}.

Some clinicians prefer to introduce tube feeding very soon after the stroke, others delay for days and sometimes weeks. One randomised trial has suggested that oral supplementation after stroke improves nutritional parameters²⁰. Early enteral nutrition after stroke reduced length of stay in hospital²¹. Dysphagia may lead to aspiration pneumonia and swallowing problems may contribute to poor outcome independently of other markers of overall stroke severity and initial coma^{10,22}. In our study, out of 100 patients, 78 patients were on tube feeding possibly as our centre was a tertiary level hospital and deals mostly with difficult patients dealing with mostly difficult cases.

The striking finding of this study was that though most patients were receiving some form of diet following stroke but analysis of the nutritional value of the foods consumed showed that none were not up to the standard mark. In this study, most of the patients took artificial milk powder and juice for their calorie requirement (Table I) which was inadequate in amount and did not fill the standard level of requirement of calorie per day according to the guideline of Food and Nutrition science department of Dhaka University, Bangladesh. When calculating dietary needs, protein requirement is put as the first priority, then splitting the remaining calories between fat and carbohydrate. Eating a well balanced diet with an emphasis on fresh vegetables and fruits; lean, clean protein foods; and whole grain is necessary in the recovery process from stroke. 2000 kcal/day and 2.5 to 3 l/day fluid is necessary in an adult to meet basal needs²³⁻²⁵. But in our study, all of our study subjects were receiving diets with calorie value way below the standard level (Table-III). Under replacement of calorie was present in patients in both nasogastric feeding and on oral feeding as well. Fluid requirements were also not met leading to potential risk of dehydration in these patients as well. Long term consequence of this under nutrition will surely affect the long term functional outcome of these patients. But unfortunately due to the limited nature of this study, such outcomes could not be evaluated. When inquired, most of the care givers attributed the cause of under replacement of calorie to lack of availability of special diet specifically designed for stroke patients (90%) in the hospital (Table-IV). Ignorance of the caregivers

(70%), poverty (70%), and poor instruction by the doctors (50%) was also other causes (Table-IV). In this study we did not measure the nutritional status and any complication for malnutrition due unavailability of nutritionist and also due to the nature of the study.

Conclusion

This is very small hospital based study considering the disease burden. Its importance cannot be underestimated. It should be mandatory to evaluate the nutritional status of stroke patients appropriately and supply the well balanced diet for early recovery and reduce the burden on family, society and the economy of the country.

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