

# Dietary Management In Geriatric Patients Of Diabetes Mellitus: Special Considerations

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## Abstract

### INTRODUCTION

Dietetics is the cornerstone of diabetes management. This is truer for elderly patients. Geriatric patients face various medical and environmental problems which make it difficult for them to achieve good glycemic control. The dietician and doctor face a daunting task, but good communication between them and the patient can make this difficult task possible. This article discusses strategies to achieve this.

### GERIATRIC PATIENTS : THE PROBLEMS

It is difficult to achieve tight glycemic control in elderly patients, because they are more prone to hypoglycemia, and often develop side effects of drugs. The large number of drugs that an average geriatric patient has to take, because of the various co morbidities and complications, also predisposes to drug interaction.(1) A geriatric patient with diabetes will be on oral hypoglycemics &/or insulin, antianginals, antihypertensives, lipid-lowering agents, anti-osteoporotic drugs, multivitamins, pain-killers, and perhaps drugs for other complications like neuropathy or nephropathy.

In such a scenario, the relative role of dietary management becomes more important. Management of the geriatric patient with diabetes mellitus, therefore, requires close collaboration between dietician and doctor.

### PHYSIOLOGICAL FACTORS

A number of basic processes of digestion and absorption of nutrients are impaired by the ageing process.

Food consumption is reduced because of decreased appetite, lack of saliva, reduced taste buds, lack of teeth and gum diseases. Reduced physical activity and basal metabolic rate also contribute to lowered food consumption. (1)

Old age is associated with reduction in levels of gastric and intestinal enzymes, leading to poor digestion and absorption of food.

Dietary restrictions, sometimes self-imposed, can cause nutritional deficiency. Many persons with diabetes eat too little, or take an unbalanced diet, because they are afraid of poor control.

Chronic drug administration may also lead to nutritional deficiency in the elderly, e.g., metformin causes folate and vitamin B<sub>12</sub> deficiency. Other drugs may lead to malabsorption by causing gastrointestinal side effects like diarrhea, e.g., orlistat.

Some complications of diabetes, which are more common in the geriatric age group, lead to reduced intake of food. Retinopathy, autonomic neuropathy and chronic heart failure all contribute to this by various mechanisms.

Retinopathy (and other ocular complications like cataract) leads to reduced visual acuity, which reduces the effectiveness of visual cues associated with appetite and hunger.

Autonomic neuropathy may lead to dry mouth, diabetic gastro paresis, constipation and diarrhea. Dry mouth leads to difficulty in chewing, while gastro paresis and constipation are associated with a feeling of abdominal fullness, bloating and lack of appetite. Diarrhea and malabsorption complicate the dietary and pharmacological management of diabetes by predisposing to malnutrition and by preventing administration of certain drugs, e.g., metformin, acarbose.

In heart failure, loss of appetite occurs because of general ill-health, and functional malabsorption occurs at the intestinal level.

Geriatric persons find it difficult to exercise and burn excess calories. The cognitive dysfunction and loss of memory associated with old age contributes to decrease in compliance with these patients often face drug therapy, and difficulty in remembering complicated regimes.

A few patients develop strong craving for sweets, which prevents them from adhering to dietary regimes. This maybe a sign of subtle hypoglycemia, caused by over dosage of antidiabetic drugs, leading to increased hunger. It may also be psychological, as a response to overenthusiastic dietary restriction enforced by members of the diabetes care team, or by the family.

Most geriatric patients suffer from co morbid conditions such as arthritis, osteoporosis, spinal disease and muscular disease .These reduce the mobility of the patient, and limit his or her ability to access food from the market, and at times, from the kitchen as well.

All these factors increase the relative importance of dietary management in geriatric diabetes.

### **ENVIRONMENTAL FACTORS**

Geriatric patients of diabetes are often dependent on family members or others to buy their foodstuffs .The quality and quantity of food, therefore, depends on a third party, who may or may not be motivated enough to follow the dietician's advice.(2) The diabetes care nurse, therefore, has to involve this 'third party', who may be a family member, caretaker or old home warden, in all decisions related to diabetes care and dietary management. This person will have to be convinced regarding the importance of a healthy diet for the patient's wellbeing.

In Asian communities, cooking at home is usually controlled by the daughter or daughter-in-law, who may resent having to prepare special meals, change the quantity of cooking oil, or reduce the amount of sweets in the refrigerator. In some cases, patients who live in old age homes may find it difficult to ask for special meals, and may have to manage with a general menu designed for general population. A strong demand for a "diabetic" menu may mean having to do with even less calories than those required for subsistence.

The social environment around us is very diabetes-unfriendly. Sweets and fried fruits, fast foods and snacks, all are available in abundance at every shop and restaurant. Efficient advertising and packaging makes it difficult to resist the temptation. "No one can eat just one" is the catch

line for an Indian brand of potato chips, and diabetics , whether by choice or by chance, are not allowed to stop at 'just one' dietary indiscretion.

Numerous festivals, functions and occasions are associated with sweets, high calorie foods, and drinks. Christmas brings with it calorie-rich cakes and puddings, while Hindu and Muslim festivals such as Diwali and Holi are associated with high intake of dry fruits and sweetmeats. Traditionally, the Muslim fast of Ramadan is broken by eating dates, and is associated with increased consumption of sweet dishes. In Sikh and Hindu gurudwaras and temples, communion or 'prasad' is given in the form of high-calorie 'boondi' or 'kara'.

Who can blame the geriatric diabetic, then , if he slips as far as dietary management is concerned ? There is a need, therefore, for diabetes nurses to sensitize religious leaders to the environmental factors which lead to a high incidence of diabetes in the Asian community. It is also necessary to encourage and request them to motivate their followers to increase fruit consumption while reducing intake of fried and sweet foodstuffs.

### **THE ROLE OF THE DIETICIAN**

The dietician's role is most important in ensuring good nutrient intake as well as maintaining glycemic control. This is truer in geriatric patients, where, due to a combination of physiologic and environmental factors, patients are unable to follow rigid guidelines with regards to meals and diet. (3)

Close cooperation is required between dietician and diabetologist to ensure efficient and effective management of diabetes. The diabetes nurse must liaison between these professionals and her patient to ensure good concordance with the suggested treatment regimes. She should also be alert to noticing subtle barriers which may prevent the patient from following the physician's or dietician's advice.

The doctor should be told about the relevant nutritive/dietetic history of the patient before she prescribes a particular insulin /tablet-based regime. Lack of teeth may prevent chewing of a fiber -rich diet, or gastro intestinal upset may not allow the patient to intake 6 meals a day.

Craving for sweets, salt or ice cold water may be pointers to change the treatment or change the diagnosis.

A detailed dietary history can also be revealing histories suggestive of hypoglycemia, which will help the doctor,

change her treatment, or the dietician, adjust meal patterns.

At times, the patients share certain information with the nutritionist which he may not tell the doctor. Financial constraints which prevent him from taking fresh vegetables or dietary supplements, and environment problems which do not let him take 4-6 meals a day are examples of such information which have a bearing on the drug treatment.

The dietician should be aware of the doctor's plan of management, the decided goals of treatment, timing of administration of various insulin/oral hypoglycemic agents (OHAs) and their pharmacokinetic profile (onset of action, peak and duration of action). This knowledge helps in creating a realistic and feasible diet plan which the patient can adhere to easily. The diet prescription should be able to ensure good glycemic control during pre- and post-prandial states, avoid hypoglycemia, optimize nutritional status, and maintain a good quality of life.

The dietician plays a pivotal role in therapeutic patient education, motivation, bonding between patient and diabetes care professionals and enhancing concordance with suggested medical regimes.

The dietician is sometimes blamed for prescribing a diet rich in calcium and fiber, as this causes side effects like gastric, constipation, belching and flatulence. Actually this may be due to the drugs such as acarbose and metformin, or due to supplements such as iron, calcium or multivitamins. Knowledge of these side effects allows the dietician to counsel the patient, and guides the doctor to modify his prescription. These side effects are more frequent in geriatric patients.

Small, frequent, easy to chew, easy to digest meals should be prescribed for geriatric patients. As for all other patients, the geriatric diabetic diet should follow the '8A Principles' of Accuracy, Appropriateness, Availability/Accessibility, Acceptability, Affordability, Attractiveness, Absorbability, and Achievability/Accountability.

### **THE EIGHT 'A'S OF DIET PRESCRIPTION**

Diet is the cornerstone of management of diabetes mellitus. A correctly prescribed, properly followed diet at times achieves much more than drugs and insulin.

One should ensure, however, that the diet prescription is not only accurate, but also appropriate. The diet should be available/accessible, acceptable, attractive, achievable and affordable. The advised meals should be

absorbable/digestible as well.

Accuracy implies that the dietician should calculate required calories, distribute them amongst different food groups and proximate principles (fat, carbohydrate, proteins) and plan a 6 meal pattern. She should educate the patient regarding food groups, food exchanges and calorie counting in a simple but accurate manner.

Appropriateness, on the other hand, means that the diet plan should fit into the patient's life style and daily routine. There is no need in advising a six meal pattern to a person on one tablet of oral hypoglycemic a day; he can do well with 4 or 5 meals as well.

'Availability' reminds the nutritionist that she should prescribe locally available food stuffs. Meal prescriptions should change according to seasons, harvests and quality of vegetables/fruits on sale in the markets. Foreign-made foods or 'sugar-free' supplements should be mentioned only if they are available on local shelves.

Accessibility stands for the ability of the patient to get the food source. A patient with limited mobility, dependent on others for shopping, may not be able to reach the fruit and vegetable market to buy fresh produce. A person suffering from retinopathy may be unable to differentiate between healthy and unhealthy foods. Similarly, another diabetic with autonomic neuropathy or olfactory dysfunction may be unable to recognize rotten fruit.

Acceptability implies that the diet advice should not contradict, or should diplomatically side step, local religious or cultural taboos. One cannot prescribe pork to a Muslim or beef to a Hindu patient, and then assume that he has taken a protein rich diet. Foods which are considered a delicacy in some cultures (snails, wild meat, mushrooms) may not be accepted elsewhere.

The most important A is affordability. No diet prescription will be followed if it cannot be bought by the patient. Advised foods should be economical, appropriate for the patient's socio economic status and not place a burden upon his already overstretched pocket. Cheaper substitutes, e.g., fresh vegetables instead of processed products, should be suggested.

Attractiveness is something that we think about when we plan our diet, but always forget when we advise our patients. One should ensure a variety of food-stuffs, so that the

dietary regime does not become monotonous, boring and impalatable.

Another A, especially important for pediatric and geriatric patients, is 'absorbability'. In the larger sense of the term, this means that the patient should be able to chew, digest and absorb the food given to him. An edentulous patient will not be able to eat, chew, digest and absorb the food given to him. A geriatric patient will not be able to chew roasted seeds, while a person with diabetic diarrhea will not accept high- fiber diet.

Whatever is advised should be 'achievable', i.e., if a person is taking 20 cigarettes/ day, one may achieve success by asking him to curtail the intake to 10 cigarettes/day. It is fool hearty to expect him to stop completely, & to maintain this behavior in the long term. 'Slowly but steadily' should be the motto for dietary behavior modification.

It helps if the patient is given objective measures, e.g. limit cooking oil to 500 gm/person/month, or buy at least 2 kg fresh fruits per week. This is what accountability means.

One should keep in mind these eight principles of a patient –friendly diet while counseling persons with diabetes.

Following these basic rules will ensure better concordance with the diet prescription, and help in achieving good glycemic control.

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