

PREVALENCE OF DIABETES IN PATIENTS ON HOME ENTERAL TUBE FEEDING (HETF): A CLINICAL AUDIT.

Dr Omragieva Ojo, Senior Lecturer in Primary Care, Department of Acute & Continuing Care, School of Health & Social Care, University of Greenwich, London, SE9 2UG.

INTRODUCTION

The prevalence of diabetes and its cost to the National Health Service (NHS) is on the increase in the UK, mainly due to factors such as lack of physical exercise, poor dietary regimes and genetic predisposition (National Collaborating Centre for Chronic Diseases, 2009). Most efforts by researchers aimed at addressing these challenges have been geared towards studies involving diabetic patients on conventional diets.

However, diabetes has been linked with other conditions such as cerebral vascular accident (CVA) in which patients may suffer dysphagia and require home enteral nutritional support. Often these patients are unable to maintain their nutritional requirements through oral intake alone and the use of exercise programmes are of limited value mainly due to neurological conditions and poor mobility (Ojo, 2010).

The primary focus of this study was to examine the point prevalence of diabetes among stroke patients and other patients on HETF to enable a thorough review of their current treatment and assess the need for alternative approaches to their management protocols.

METHODS

This study was a clinical audit conducted in the Home Enteral Nutrition (HEN) service of Lewisham Healthcare. It involved the review of the database of all 257 patients (Male and Female) on HETF (Figure 1) living within Lewisham, Southwark and Lambeth Primary Care Trusts (PCTs). The records of 20 of these patients (Mean age, 65.45 ± 17.52 yrs) who were diagnosed with diabetes (Type 1 diabetes, n=1; Type 2 diabetes, n=19) were further studied. This involved reviewing the records/data of all the diabetic patients on HETF living within the three PCTs with respect to the following areas;

- Types of feeding tube (e.g. Nasogastric tube, percutaneous endoscopic gastrostomy tube and percutaneous endoscopic jejunostomy tube)
- Types medication (Oral hypoglycaemic agents, Insulin)
- Methods of feeding (Continuous feeding, bolus feeding)
- Blood glucose monitoring by staff and/or patients

These data were entered into Microsoft Excel spread sheet and the descriptive statistics were analysed. The relative number of these patients that fell within each of the above categories were expressed as percentage of the total number of diabetic patients studied.

Figure 1 Shows patients on Enteral feeding tube system



Figure 2 Shows some of the equipment used by diabetic patients to monitor their blood glucose (Type 2009).



The prevalence of diabetes (Figure 2) in each PCT was calculated by expressing the number of patients on HETF who were diagnosed with diabetes within each PCT as a percentage of the total number of patients on HETF. The prevalence of diabetes in HETF patients within the three PCTs were compared with diabetes prevalence in the general population based on Quality and Outcomes Framework (QoF) reference data (The Health and Social Care Information Centre, 2010).

RESULTS

The results in Figure 3 show that the prevalence of diabetes in HETF patients was highest in Lambeth (9.68%), 7.92% in Lewisham and lowest in Southwark (4.76%) PCTs. Compared with the QoF data, the prevalence of diabetes in HETF patients in Lambeth, Lewisham and Southwark were higher than the general population and the mean prevalence in the three PCTs was significantly higher (7.78%) than the prevalence of diabetes in the general population (3.81%).

Figure 3 Shows the prevalence of Diabetes in Patients on HETF compared with April 2010 - March 2010 QoF reference Data in South East London (The Health and Social Care Information Centre, 2010).

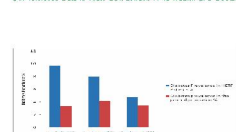
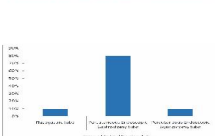


Figure 4 Shows the percentage of diabetic patients on HETF using different types of enteral feeding tubes.



In terms of managing the diabetes patients on HETF, percutaneous endoscopic gastrostomy (PEG) was the main type of feeding tube, representing 80% compared with nasogastric (10%) and percutaneous endoscopic jejunostomy (PEJ) (10%) (Figure 4).

Most of the diabetic patients studied were on continuous feeding requiring a feeding pump (95%) compared to those on bolus feeding (5%) (Figure 5).

Figure 5 Shows the percentage of diabetic patients on HETF based on the method of enteral feeding.

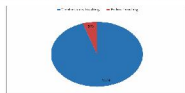
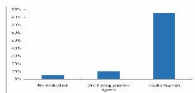


Figure 6 Shows the percentage of diabetic patients on HETF based on the method of treatment.



Insulin (including short and long acting insulin) was the primary method of treating diabetic patients on HETF (85%) compared with oral hypoglycaemic agents (10%) and those not requiring medication (5%) (Figure 6). Fifty five percent (55%) of the diabetic patients on HETF had CVA compared with 45% for the other conditions such as cancer of the head and neck, and hypoxic brain damage. All the diabetic patients on HETF had their blood glucose monitored routinely mainly by nursing home staff, community nurses and sometimes by self. Patients' HbA1c was checked via GP referrals.

The prevalence of diabetes in HETF patients in this study was twice the prevalence in the general population. The reason for this may be the link between diabetes and CVA and other conditions requiring enteral tube feeding. Fifty five percent (55%) of the diabetic patients in this study had CVA. It is also possible that the differences may have resulted from the underestimation of diabetes prevalence in the general population (National Collaborating Centre for Chronic Diseases, 2009). Most people who are diabetic are undiagnosed for many years whereas patients on the HETF are regularly monitored by dietician nurses, community matrons and nurses in nursing home are therefore, more likely to be diagnosed earlier.

The results showing that 80% of the patients were on PEG tube and 10% on PEJ would suggest that most of these patients were on long term enteral feeding (Ojo, 2011). Nasogastric feeding tubes are usually for short term feeding such as 4 weeks (Strandler et al., 2003). The continuous feeding plan of most of the diabetic patients may be due to their inability to tolerate bolus feeding. The poor mobility resulting from CVA and other neurological conditions may impair gastric emptying and affect tolerance to high feeding rate while bolus feeding may increase the risk of aspiration. The use of both short and long acting insulin regimes by most patients on HETF (85%) may be connected with the enteral feeding regimes of the patients. Most of the patients were on 1,500 litres of nutrition energy multi fibre per day, running at 100ml/hr.

CONCLUSION

The prevalence of diabetes in patients on HETF in this study doubled that observed in the general population. These findings suggest a higher preponderance of diabetes among patients with high risk of cerebrovascular disease. This calls for greater awareness and a high index of suspicion during treatment of stroke patients. Current management strategies for known diabetes patients on HETF include PEG, continuous feeding, regular blood glucose monitoring and use of short and long acting insulin regimes. Routine screening of HETF patients to exclude diabetes is recommended.

ACKNOWLEDGEMENT

I wish to acknowledge the support provided by the Home Enteral Nutrition Service of Lewisham Healthcare and Nutricia for providing the photograph of the patients on enteral tube feeding.

REFERENCES

1. The British Dietetic Association (2006) *Diabetes and Nutrition* (London: The British Dietetic Association).
2. National Collaborating Centre for Chronic Diseases (2009) *Diabetes in Primary Care: Guidelines for Management* (London: Royal College of Physicians).
3. Ojo O (2010) *Diabetes and Nutrition* (London: Taylor & Francis).
4. Ojo O (2011) *Diabetes and Nutrition* (London: Taylor & Francis).
5. Strandler R, Durrant R and Hoggins J (2003) *Diabetes and Nutrition* (London: Taylor & Francis).
6. The Health and Social Care Information Centre (2010) *Quality and Outcomes Framework 2010* (London: The Health and Social Care Information Centre).