Service Priorities and Programmes

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The Use of Professional Continuous Glucose Monitoring (CGM) in Patients with Type 2 Diabetes Mellitus (T2DM)

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Introduction

Professional CGM is small sensor inserted subcutaneously that continuously measures interstitial fluid glucose. It identifies glucose pattern, by combining with information about diet, activity and drug treatment, it helps care-provider to modify treatment. Some studies showed CGM improve glycemic control and reduce hypoglycemia in diabetic patients.

Objectives

Retrospective study to investigate if professional CGM improves glycemic control or reduces hypoglycemia in T2DM patients in local hospital

Methodology

We identified all 58 adult T2DM patients that received a 6- to 7-day professional CGM between 2014 and 2015 in our Diabetes Nurse Specialist Clinic. A control group matched with age, sex, baseline insulin regime and insulin type was selected from same clinic in same period but without professional CGM. Patients were referred because of hyperglycemia, hypoglycemia or fluctuating glycaemia.
Both groups received standard care including lifestyle advice, drug compliance checking, insulin injection timing and technique assessment, etc. Treatment recommendations were made by identical team of specialist doctors and nurses, based on CGM report in CGM group; self-monitoring of blood glucose (SMBG) in control group. Baseline characteristics; HbA1c and number of hypoglycemic events before and 3-6 months after recommendation provision were retrieved from case records.

Result

Mean age was 58.9 and 59.7 year-old in CGM and control group respectively. Mean DM duration was 17.2 and 17.8 years in CGM and control group respectively.
CGM group received significantly more change in insulin regime (39.7% of patients in

CGM group VS 6.9% in control group) and non-insulin drug treatment (24.1% of patients in CGM group VS 3.4% in control group).
CGM group had significant HbA1c reduction of 0.70 ±1.08% from 9.70±1.00% to 9.00±0.95% ($p<0.001$); while control group had non-significant HbA1c reduction of 0.16±0.81% from 9.64±1.13% to 9.48±1.25% ($p=0.146$). After adjustments of baseline HbA1c, DM duration and BMI of both groups, CGM group still showed significantly better HbA1c reduction ($p=0.002$). Higher baseline HbA1c was associated with greater HbA1c reduction (baseline HbA1c >10% had HbA1c reduction of 1.19% VS baseline </=10% had reduction of 0.37% in CGM group)
CGM group had significant reduction in number of non-severe hypoglycemia ($p=0.025$), control group did not ($p=0.698$). However, the baseline number of non-severe hypoglycemia significantly differed.
Professional CGM can be a useful tool to improve glycemic control in our local T2DM patients.