Service Priorities and Programmes

Electronic Presentations

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Utilization of continuous glucose monitoring system (CGMS) enhances quality care for difficult diabetic control

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Introduction

Diabetes mellitus poses heavy burden to health care system, in terms of both acute and chronic complications arising from poor glycaemic control. Evidence based medicine has clearly demonstrated reduction in morbidity and mortality rate with every 1% drop in haemglobin A1c (HbA1c) level. With advancement in technology, continuous glucose monitoring system (CGMS) can capture variation of blood glucose level throughout the day, and by matching with patient's diet, exercise and activity pattern and current drug regimen, tailored made adjustments can improve overall glycaemic control, yet avoiding hypoglycaemic episode.

Objectives

To incorporate continuous glucose monitoring system (CGMS) to improve glycaemic control in "difficult" diabetic patient

Methodology

Endocrine team in our hospital is constantly facing challenging diabetic patients in specialized diabetic clinic, and not uncommonly, with high overall average glucose levels reflected by haemoglobin A1c (HbA1c) and yet with episodes of hypoglycaemic attacks. These are our target patients as they carry high vascular complication risks. With the incorporation of CGMS, we recruited these "difficult" patients into an intensive review program. Patient will be reviewed by diabetic nurse and doctor in diabetic clinic in initial recruitment phase before application of CGMS. Comprehensive review is then undertaken in multidisciplinary team meeting, including diabetic nurse, dietitian and endocrine team specialists, when all data are available. Tailor made recommendations including appraisal of diet, lifestyle modification and drug regimen will be made. Patients will then be reviewed by all parties in different disciplines to accomplish those action plans and for regular evaluation.

Result

From Jan 2013 to June 2014, 27 diabetic patients were recruited into CGMS intensive review program. Their mean HbA1c level improved by 1% 6 months after CGMS recruitment (from 10.11% to 9.11%) (p=0.00). Same numbers of control group patients were recruited for comparison. These controls were randomly paired by attendance of diabetic clinic as with CGMS group within the same month, matched with age and were all on insulin treatment. For control group patients, their mean HbA1c level dropped by a non significant percentage of 0.24% in the same timeframe of 6 months (from 9.84% to 9.6%, p=0.309). Comparing CGMS and control group, the improvement in HbA1c in CMGS program group was statistically significant (p=0.026). Conclusion: With the introduction of CGMS, multidisciplinary approach to “difficult” diabetic patients improves HbA1c level significantly, which translates into reduction in complication rate, morbidity and mortality rate, as demonstrated in various large randomized control trials.