Effectiveness of a CDARS-guided Diabetic Complication Assessment Program at the Queen Mary Hospital

Leung ELY(1), Woo YC(1), Yee ASW(1), Chow WS(1), Leung CY(1), Fong CHY(2), Chan HKM(1), Tan KCB(2), Lam KSL(2)

(1) Department of Medicine, Queen Mary Hospital, HKSAR (2) Department of Medicine, the University of Hong Kong, HKSAR

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Introduction
Chronic complications of Diabetes Mellitus (DM), often asymptomatic, can result in significant morbidity and premature mortality. Without appropriate management, it incurs heavy burden to our health care system. To facilitate initiation of timely treatment, regular comprehensive assessment is recommended for early detection of complications and monitoring of risk factors control.

Objectives
To evaluate the effectiveness of the CDARS-guided Diabetic Complication Assessment Program (DCAP) at Queen Mary Hospital.

Methodology
All DM patients under the care of Specialist Out-Patient Clinics (SOPC) in Hong Kong West Cluster (HKWC) were recruited to the program by an active screening approach using the Clinical Data Analysis and Reporting System (CDARS). Standardized assessments were performed which included anthropometric measurements, laboratory tests, retinal photography by optometrist, foot and vascular assessments. According to pre-defined algorithms, patients with newly diagnosed complications were referred to corresponding specialists for further management. After the assessment, patients received recommendations from a diabetologist for treatment intensification. For those who have suboptimal glycaemic control, they were either triaged to attend an education class (HbA1c 7.1 – 8.9%) or DM nurse clinic (HbA1c > 9%) according to their glycaemic control.
Result
Results: From 1.8.2011 to 31.7.2014, a total of 7214 patients completed the DCAP. They had mean age of 63.5+13.6 years and mean DM duration of 11.8 + 9.3 years. In term of prevalence of diabetes related complications, 58% patients had diabetic retinopathy, 46.8% had urinary albumin-to-creatinine ratio ≥ 3.5 mg/mmol Cr, 27% had estimated glomerular filtration rate below 60 ml/min/1.73m2, 26% had abnormal pinprick sensation and 24% had abnormal vibration perception threshold, whilst 31.1% had history of coronary heart disease and 9.7% had history of stroke. With regard to the anti-diabetic treatments, patients were managed by diet control only (4%), oral anti-diabetic drug (OAD) only (62%), insulin therapy (13%) or OAD and insulin combination therapy (21%). Among all recruited patients, 3983 patients completed their second DCAP after an interval of 18 months. With participation in this newly implemented program, these patients had an improvement in HbA1c level when compared with their baseline (7.5+1.4% vs. 7.7+1.4% at baseline, p < 0.001). The program also contributed to the overall improvement of proportion of DM patients meeting the HbA1c < 7.0% treatment target in SOPC of HKWC (41.5% vs. 34.6% at baseline). Conclusion: DM patients managed in SOPC harboring multiple risk factors are undoubtedly at high risk of developing diabetes related complications. They would benefit from close monitoring, followed by intensive treatment, to prevent further disease progression. This well-coordinated, proactive service program effectively fills the service gaps and improves patient health outcomes.