Health Services & Systems Research Category
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00529

An Integrated and Personalised Eye Care Model to Improve Diabetes Management and Patient Centred Outcomes in Poorly Controlled Patients with Diabetic Retinopathy

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Aims: Optimal diabetes control in patients with diabetic retinopathy (DR) is very low amongst Singaporeans. This pilot study assessed the short-term effectiveness of a structured DR specific, integrated and personalised eye care (DR-IPEC) model that integrates patients with DR and poorly controlled diabetes within the wider healthcare system; and empowers them with self-management skills to improve diabetes control and medication adherence.

Methodology: In this pilot randomised controlled trial, 43 eligible participants (HbA1c ≥8.0% over two consecutive readings and any DR) were randomly assigned to DR-IPEC or usual care (control) arms after completing the baseline assessment. DR-IPEC included consultations on managing diabetes control and related comorbidities by a family care physician; follow-up home visits or phone calls by a diabetes nurse; personalised eye care consultations based on patients' own retinal images and 3 behaviour change support phone calls by a nurse educator. HbA1c (primary outcome), lipids, BP and adherence to medications (using 8-item Morisky questionnaire) were assessed at baseline and 3 months post-intervention.

Result: Of the 43 recruited participants with similar baseline characteristics, 32 (n=16 per arm) completed the study. At 3 months, between-group comparisons showed a significantly greater reduction in mean HbA1c in the DR-IPEC arm compared to controls (-0.79%, p=0.03). Furthermore, significant within group reductions in HbA1c, LDL and total cholesterol (-0.8%, -0.21 mmol/L, -0.63 mmol/L, respectively; p<0.05) and improved medication adherence (0.84, p<0.02) were observed in patients undertaking DR-IPEC, but not the group receiving usual care. 73% of the DR-IPEC group reported a better understanding of DR and diabetes management post intervention.

Conclusion: The DR-IPEC model appears to be an effective strategy to improve diabetes control outcomes over the short-term, particularly glycaemic control. A larger sample size evaluated over a longer period is needed to determine the long-term clinical, cognitive, behavioural, psycho-social, and economic effectiveness of the DR-IPEC model.