

**The efficacy of telemonitoring and integrated personalised diabetes management in people with insulin-treated type 2 diabetes: a preliminary analysis**

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**Background and aims:** An integrated personalized diabetes management (iPDM) can improve glycemic control in people with diabetes. Emerging evidence suggests that telehealth can improve diabetes care. The purpose of this study was to assess the efficacy of diabetes care through a structured telehealth model of care.

**Materials and methods:** A 6-month single-center, open-labeled, prospective randomized controlled trial enrolled insulin-treated subjects with diabetes, aged 18-65 years old and A1c of 7.4-10.5%. All participants received standard diabetes education. The tele-iPDM group would connect to the cloud-based telemonitoring platform and adjust insulin following a protocol by investigators weekly for 3 months (phase 1), then monthly for another 3 months (phase 2). The usual care group will receive standard diabetes care and record glucose data in the paper logbook. The primary outcome was a difference in A1c change from baseline between 2 groups at 12 and 24 weeks. Secondary outcomes included changes in FPG, BW, BMI and the percentage of people with A1c < 7% at 24 weeks, the percentage of people with a A1c reduction of >0.5% at 24 weeks, SMBG profiles, and the number of hypoglycemic events.

**Results:** Ninety subjects completed phase 1 and 61 subjects completed phase 2 study. The mean age was 53.07±7.74 years. The mean duration of diabetes was 11.76±8.26 years. The baseline A1c was 8.48±0.76%. Phase 1 study showed a mean reduction in A1c of 1.02% (95%CI 0.74-1.30) in the tele-iPDM group and 0.48% (95%CI 0.19 - 0.76) in the usual care group. The difference in A1c reduction between 2 groups was -0.56% [-0.94 - (-0.16), p<0.05]. At 24 weeks of follow-up, the mean difference in A1c between the tele-iPDM and usual care groups is 0.68% [95%CI -1.17-(-0.19), p<0.05]. There were no significant differences in body weight and body mass index in both groups.

**Conclusion:** Telemonitoring can facilitate the iPDM care model in people with insulin-treated type 2 diabetes mellitus. It improves the efficiency of diabetes care and improves glycemic control at 12 weeks and can maintain glycemic control at 24 weeks.

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