Achieving Desirable Glycemic Targets without the risks of Hypoglycemia using a teletitration Program

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Abstract

Tight glycemic control is mostly unachievable in clinical practice due to fear of serious symptomatic hypoglycemia. UKPDS has shown that each 1% reduction in mean A1c was associated with 37% reduction in microvascular complications and 21% reduction in the risk of deaths related to diabetes, with the lowest risks associated with A1c value of below 6%. In our centre we use a software based Diabetes Tele Management System (DTMS) for those subjects willing for a regular follow up either through the telephone or internet. Trained staffs, dedicated telephone lines and networking of computers enable data collection. Subjects were highly motivated and taught on the rules of tele follow-up. They were instructed to report 4 blood sugar values (fasting, 2 hour post breakfast, 2 hour post lunch and 2 hour post dinner) by SMBG once in 3-7 days. Periodicity of tele follow up was determined by severity of diabetes, fluctuations in blood sugars and presence or absence of complications. Dosage titration of medications were carried out by the diabetologist at periodic intervals until the average fasting and post meal values reached below 110 and 135mg% respectively. Each tele conversation offered an opportunity not only for modification of dosages of medications but also for diabetes patient education on self management. Here we present the data of 41 patients who had a regular follow up, on insulins and oral drugs for 2 years, mean age group 54.87 (range 32 - 76years) with an initial mean A1c of 8.85%. The statistical analysis of the result shows that there is a significant reduction in average A1c level from the initial mean of 8.35% to a mean of 6.87% at 3 months (p=1.35x10^-9) and 5.89% at 2 years (p=7.19x10^-16). None of the subjects reported symptomatic hypoglycemia during the study period.

Design & Methods

Subjects were highly motivated and instructed to report 4 blood sugar values (fasting, 2 hour post breakfast, 2 hour post lunch and 2 hour post dinner) by SMBG through telephone or e mail or web site once in 3-7 days. Dosage titration of medications were carried out by the diabetologist at periodic intervals aiming at fasting and post meal values below 110 and 135mg% respectively. 24 hours help line assisted in dealing with queries on monitoring, low sugars, medications etc.

Results

An A1c below 6%, though considered the ideal target in diabetes management, is not always aimed at in routine clinical practice, due to fear of serious hypoglycemia. UKPDS has shown that each 1% reduction in mean A1c was associated with 37% reduction in microvascular complications and 21% reduction in the risk of deaths related to diabetes, with the lowest risks associated with A1c below 6%. In our centre we use a software based Diabetes Tele Management System (DTMS) for those subjects willing for a regular follow up either through the telephone or internet. Trained staffs, dedicated telephone lines and networking of computers enable data collection. Subjects were highly motivated and taught on the rules of tele follow-up.

Conclusion

Periodic Tele follow up of diabetes patients by a group of trained professionals with the help of telephone or internet coupled with e mail allows for a safe and cost effective method to achieve A1c below 6% without serious risks of hypoglycemia and prevention of long term complications.

References

1. Acceptance of diabetes education via the telephone. AMIA Annu Symp Proc. 2005;:900

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