# Optimising Glycaemic Control

## Does early introduction of insulin therapy

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*The burden of diabetes mellitus is a serious and heavy one for patients and their families. Lack of glycaemic control can translate into a sense of hopelessness and helplessness on the part of the individual affected*

This in turn is exacerbated by the eventual appearance of diabetes-related complications. A number of studies have shown that improving glycaemic control results in an improved quality of life.[1] Similarly over the last decade, the DCCT[2] and the UKPDS[3] trials demonstrated that the incidence of both micro- and macrovascular complications of diabetes mellitus is decreased with improved glycaemic control albeit at the risk of increased hypoglycaemic events.

The American Diabetes Association and the European Association for the Study of Diabetes have just published consensus guidelines on the management of hyperglycaemia in Type II diabetes mellitus.[4] An emphasis is placed on initial therapy with lifestyle modification, metformin and the rapid addition of medications, with transition to new regimens when glycaemic control is not achieved. The early addition of insulin therapy in patients who do not meet target goals is strongly advocated. Physicians are now fortunate in that the armamentarium of blood glucose lowering agents has increased but this has also resulted in a certain degree of uncertainty regarding the best regimens.

Review of the literature indicates that the need to individualise patient treatment is paramount. There is no fixed formula that can be applied to one and all and dose titration of all agents utilized is essential in order to achieve the ambitious HbA1c, postprandial and fasting blood glucose (BG) levels proposed by the American Diabetes Association (ADA) and the International Diabetes Federation (IDF)[5] shown below. There is still some discrepancy between the recommendations made by these two bodies as is evident from table 1.

Traditionally newly diagnosed Type II diabetes is treated with a combination of diet, exercise and the gradual introduction of oral hypoglycaemic agents. A number of patients with type II diabetes mellitus will achieve acceptable daytime blood glucose levels but have persistently elevated fasting blood glucoses and HbA1c levels. Wright et al reported that 50% of sulphonylurea-treated Type II diabetics require insulin therapy to achieve HbA1c of less than 7 %.[6]

However, the barriers to implementing early basal insulin therapy in Type II Diabetes remain significant both on the part of the healthcare professionals and the patient.[7] The latter are concerned with the fear of hypoglycaemia, weight gain, possible lifestyle restrictions and at times, a fear of injections. Furthermore, psychologically, there is often an association between the need to start insulin and the perception of increasing severity of diabetes mellitus compounded by a sense of personal failure. On the part of the doctor, lack of experience with instituting and supervising insulin treatment, fear of hypoglycaemia and perceived burden to healthcare systems and resources are real issues.

The development of new classes of drugs such as the thiazolidinediones and exenatide provide further possibilities for the management of diabetes mellitus. As newer insulin analogs are approved for clinical use, the management of diabetes could change across the globe with early introduction of basal insulin supplementation in addition to oral hypoglycaemic agents becoming the rule rather than the exception. Treating to target has been facilitated by the use of insulin analogs such as insulin glargine[8] whilst comparative studies have shown that there is less risk of hypoglycaemia with the newer insulin analogs[9,10]

A number of questions however, remain unanswered. There are established guidelines with respect to treating to target and maximizing medication efficacy but at what time point in the course of an individual's lifelong struggle with diabetes should early basal insulin therapy be instituted? The ORIGIN study is currently analyzing optimizing glycaemic control across the spectrum of glycaemic dysregulation and has included a group of subjects with impaired glucose tolerance and early diabetes mellitus possibly of less than 3 years duration. Furthermore, the issue of how aggressively to increase insulin doses and whether the expected improvement in long term outcomes will in fact be observed await further study.

**Table 1:** *Recommendations by the American Diabetes Association (ADA) and International Diabetes Federation (IDF)*

| | Preprandial BG | Post prandial BG | HbA1c |
|---|---|---|---|
| IDF | <6.0 mmol/l | <8.0 mmol/l | <6.5% |
| ADA | <5.0-7.2 mmol/l | < 10 mmol/l | <7.0 % |

# in Type II Diabetes Mellitus
## improve QOL and patient outcomes ?


### References

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