Comment on: Distiller LA, Joffe BI (2006) From the coalface: does glargine insulin improve hypoglycaemic episodes, glycaemic control or affect body mass in type 1 diabetic subjects who are attending a 'routine' diabetes clinic? *Diabetologia* 49:2793–2794

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To the Editor: Distiller and Joffe reported that type 1 diabetic patients being treated in a 'real-world' environment with basal-bolus therapy did not achieve better glycaemic control when converted from NPH to glargine insulin [1]. Prior to changing to glargine, 32.2% of these type 1 diabetic subjects were receiving an NPH injection more frequently than once daily.

My colleagues and I performed a similar retrospective study on patients with type 1 diabetes receiving basal-bolus therapy and found that 24.4% of subjects converted from NPH insulin needed twice daily glargine injections [2]. When glargine first became available, I converted 84 type 1 diabetic patients receiving basal-bolus therapy from night-time NPH to night-time glargine. After conversion to glargine, the average HbA_{1c} increased in 20 of these patients, from 7.9 to 8.1%, whereas it decreased in the other 64 patients, from 7.8 to 7.3% ($p=0.01$). When glargine was administered at breakfast and at the evening meal to the 20 patients whose HbA_{1c} had deteriorated, their HbA_{1c} dropped from 8.1 to 7.4% ($p=0.001$). A higher dose of glargine than NPH was necessary to achieve this improvement in glycaemic control (44 ± 26 vs 26 ± 13 U, $p=0.008$).

At the low per-kilogram doses typically administered to type 1 diabetic patients, glargine's duration of action is often less than 24 h (see glargine package insert¹). In spite of this, glargine is not indicated for twice daily use. A recent study on

type 1 diabetic subjects reported that, irrespective of the time glargine is administered, the lowest insulin levels occur at the time of the next daily injection [3]. Furthermore, in a short-term crossover study, the same group reported that serum glucose concentrations are highest in the late afternoon when glargine is injected with the evening meal, and that this increase could be prevented by injecting glargine twice daily, once at breakfast and once with the evening meal [4].

I therefore believe that, in Distiller's audit, conversion from NPH to glargine insulin in patients using basal-bolus therapy would have improved glycaemic control overall if glargine had been injected twice daily. In addition, if patients previously receiving multiple NPH injections had been excluded from the analysis then an improvement in glycaemic control may have been seen in the remaining subjects. Re-analysis might also show that the subjects receiving the higher per-kilogram doses of glargine benefited most from the change from NPH insulin to glargine insulin.

References

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