

Reduced Insulin Requirements and Improved Glycemic Control with Pioglitazone in Insulin-treated Patients with Type 2 Diabetes: Results from PROactive

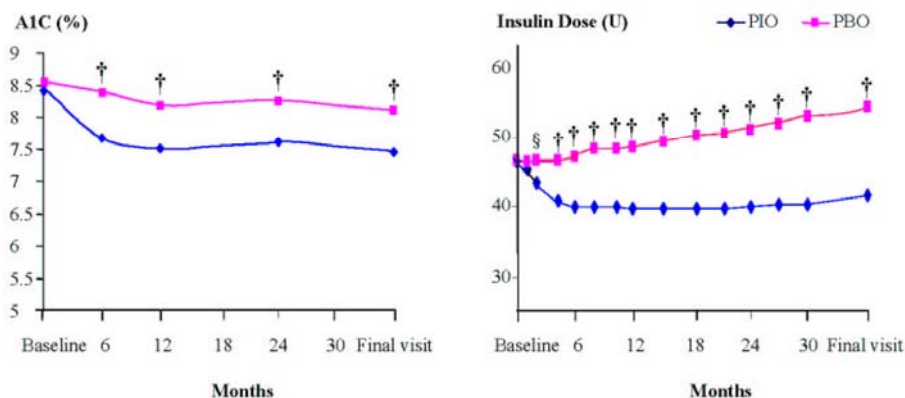
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Treatment of type 2 diabetes (T2D) typically requires multiple agents, including insulin. PROactive evaluated the effects of pioglitazone (PIO) vs placebo (PBO) on cardiovascular outcomes in 5238 high-risk patients with T2D. We examined insulin requirements and glycemic control in the one-third of patients (PIO=864; PBO=896) who were treated with insulin at baseline in PROactive (mean follow-up=34.5 months).

Within this cohort, baseline A1C values and mean daily insulin doses were similar between treatment groups (PIO=8.4% & 47 U/d; PBO=8.5% & 47 U/d). In both groups at baseline, insulin was combined with oral monotherapy with metformin (MET) in 53% and sulfonylurea (SU) in 24% of patients and with dual therapy with MET+SU in 12%.

A rapid and sustained decrease in insulin doses was observed with PIO, contrasting with a progressive increase with PBO. By study end, the mean insulin dose was lower with PIO (42 U/d) than with PBO (55 U/d; $p < 0.0001$); nevertheless, a greater decrease in A1C was observed with PIO (-0.93%) compared with PBO (-0.45%; $p < 0.0001$). At final visit, insulin had been discontinued in 9% of patients in the PIO group vs 2% in the PBO group ($p < 0.0001$). The proportion of patients on oral/insulin combined therapy remained similar in both groups: MET alone in 47% vs 52%, SU alone in 16% vs 16%, and MET+SU in 10% vs 11%, in the PIO group vs the PBO group, respectively ($p = \text{NS}$).

A1C and Mean Insulin Dose by Study Visit in Patients Receiving Insulin at Baseline



† $p < 0.0001$ versus placebo; § $p = 0.0371$ versus placebo

There were differences in edema (PIO=31%; PBO=18%; $p<0.0001$) and hypoglycemia (PIO=41%; PBO=29%; $p<0.0001$), but there were no other differences in the safety profiles between the PIO and PBO groups (with or without other treatments).

PIO reduced the number of patients on insulin and the mean daily insulin dose, while providing better glycemic control than PBO.