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Diabetes and Endocrinology
Thyroid Ultrasound and Biopsy
Bone Densitometry
Osteoporosis

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To whom it may concern:

Regarding: Stage Three of the Review for Medicines Used in the Treatment of Type 2 Diabetes

Please find attached a copy of the small study I undertook and presented as a poster at the Australian Diabetes Society meeting last year.

This study was undertaken to determine whether it was cost-effective to use triple therapy with metformin, insulin and a DPP 4 inhibitor, or not. The study shows that, even in a small number of patients, there is a small cost benefit and certainly not a detrimental effect, with respect to cost, with accommodation.

We have a number of new agents entering the marketplace and all companies are vying for a share of the public purse.

There are distinct theoretical and practical advantages in the use of the DPP 4 inhibitor class, however, they are still relatively expensive, when compared with older agents, such as sulphonylureas.

Based on this study and some of the recognised disadvantages of sulphonylureas (hypoglycaemia, weight gain and islet-cell exhaustion), I think it is reasonable to recommend that triple therapy with metformin, insulin and a DPP 4 inhibitor (in this case vildagliptin), be allowed.

In the context of getting the best "bang for buck," perhaps the best way forward may be to negotiate an optimal price with all the companies involved, in order to permit this combination.

There are distinct savings to be made in the reduction of the amount of insulin, in whom this combination is effective and some individuals may be able to discontinue insulin altogether.

I'm happy to discuss this at length further, if required.

Dr Dan Harmelin

Economic Benefit of Combining Vildagliptin with Insulin

Studies have shown the efficacy (lowering of HbA1c) using combination treatment of DPP4 inhibitors with insulin and metformin. The PBS does not yet support this approach. The most likely argument is the cost of the DPP4 inhibitors.

This pilot project, conducted in a private practice setting, was to determine (a) whether the treatment worked (b) learn the true costs.

Type 2 diabetes patients, on basal insulin (all taking glargine) and usually metformin (unless intolerant or on basal-bolus insulin treatment) with either sub-optimal control (HbA1c>7.0%) or intractable obesity, were offered combination treatment with the addition of vildagliptin and a concomitant reduction, followed by ongoing downward titration of insulin. Where possible, insulin was discontinued. The amount of insulin saved per patient was calculated and the cost per patient and overall was estimated, using recently published costs of insulin and vildagliptin or vildagliptin combinations with metformin, taken from the PBS website. For simplicity, the most expensive cost of all the combinations of vildagliptin with metformin was used. There was a net saving in cost, suggesting that there is an economic benefit in the PBS permitting the use of vildagliptin as triple therapy.

All patients were initially counselled in the use of a Low GI Diet, as published by Jennie Brand-Miller et al, but with the further restriction on avoiding bread (the very low GI breads were not easily available at the start of the evaluation) and in the use of a low fat diet, using the Allan Borushek Calorie and Fat Counter, to try to keep fat intake below 40grams per day. All patients were given a diet sheet and asked to “avoid bread, rice, potato, sweet potato, cakes, biscuits, take-away food, dairy products (other than skim milk, low fat cottage cheese or ricotta and low-fat, low carbohydrate yoghurt).” The sheet also asks them to aim to keep fat intake below 40 grams per day and avoid food with more than 100grams of fat per food item and 2.3 grams of saturated fat per 100 grams of food item. Where motivation or appreciation of complications was lacking, the patient was offered our DVD, “Breaking Down Barriers in Diabetes.” Those unable to undertake or maintain lifestyle changes appeared to be those who failed to respond (early or late).

Summary of Results:

Total number of patients = 62 (Male = 33, Female = 29)

Lost to Follow Up = 2

Excluded for Side- Effects = 4 (GI intolerance = 2, rash = 1, blisters = 1)

Failed treatment = 29 (includes early responders, with failure at 12+months)

Responders = 27 (12 off insulin altogether; male responders = 17/27

?males have worse diet/exercise/alcohol at outset)

Costs:

Glargine: supplied as box of 5 pens, each with 3ml glargine at concentration 100units per ml

Box of glargine = $432.75

3ml x 100 units per ml x 5 pens = 1500units

43275 cents/1500 units = 28.85 cents per unit

Vildagliptin: most expensive combined vildagliptin/metformin combination is $100 per 60 tabs (cheaper varieties only approx. $3 less) – use most expensive version for calculations

$100/60 tabs = 166.667 cents per tab

All patients use 2 tabs per day = 333.3333 cents per day per patient using vildagliptin (any)

27 patients remained on Galvumet = 27 x 333.3333 cents per day

= 8999.99 cents per day is cost of Galvumet

Savings on insulin:

Insulin saved per day = 710 units glargine

Amount saved = 710 units x 28.85 cents per unit = 20483.5 cents per day

Savings on group for 1 day = 20483.5-8999.999 cents = 11485.01 cents per day

Thus savings in insulin cost, after paying for Galvumet used = $114.85 per day

If this finding is consistent in larger groups, there would be an advantage in the PBS permitting the use of triple therapy (metformin plus vildagliptin plus insulin – glargine or detemir).

Conclusion: In this group of 62 people, there was a cost saving per day of $114.85, by combining vildagliptin with insulin. In most patients there was an improvement in HbA1c (observed average 1.15% reduction in HbA1c), although this was not designed as a study to confirm that point, and, overall, observed weight was lost or neutral (average weight loss = 0.272727kg), although, again, this was not designed to confirm that point. This is consistent with previous studies.

Other DPP4s might be expected to have similar benefits, but we do not have the numbers to confirm this.