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ERRATUM

Erratum to: Pharmacokinetics, safety, and efficacy of DPP-4 inhibitors and GLP-1 receptor agonists in patients with type 2 diabetes mellitus and renal or hepatic impairment. A systematic review of the literature

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Unfortunately, the citations of two papers are missed in the Table 3 and References section of the original publication.

The two references should be cited in the row where Chan et al. is cited in Table 3. The revised Table 3 and two references are included with this erratum.

References

J.C. Arjona Ferreira, D. Corry, C.E. Mogensen, L. Sloan, L. Xu, G.T. Golm, E.J. Gonzalez, M.J. Davies, K.D. Kaufman, B.J. Goldstein, Efficacy and safety of sitagliptin in patients with type 2 diabetes and ESRD receiving dialysis: a 54-week randomized trial. Am J Kidney Dis **61**(4), 579–587 (2013)

J.C. Arjona Ferreira, M. Marre, N. Barzilai, H. Guo, G.T. Golm, C.M. Sisk, K.D. Kaufman, B.J. Goldstein, Efficacy and safety of sitagliptin versus glipizide in patients with type 2 diabetes and moderate-to-severe chronic renal insufficiency. Diabetes Care **36**(5), 1067–1073 (2013)

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Table 3 Main efficacy findings of studies with DPP-4 inhibitors and GLP-1 receptor agonists in patients with renal impairment. No such studies were available for exenatide and lixisenatide

Drug	Reference (level of renal impairment)	Dose	Main efficacy parameters	Main efficacy findings
DPP-4 inhibitors				
Linagliptin	*Cooper* et al., *2011* (mild and moderate)	5 mg OD	Change in HbA_{1c} from baseline	The mean change in HbA_{1c} from baseline to week 24 in patients with normal renal function (−0.6 %) did not differ from that observed in patients with mild (−0.6 %) or moderate (−0.7 %) impairment (vs. no changes in the placebo group) in the linagliptin group. Change in HbA_{1c} from baseline in patients with baseline $HbA_{1c} \geq 9$ % was −1.2 % in all three subgroups, and was −0.7 % in subjects aged < or ≥65 years.
	Sloan et al., *2011* (severe)	5 mg OD	Change in HbA_{1c} from baseline	The mean change in HbA_{1c} from baseline to week 12 was −0.76 % in the linagliptin group and −0.18 in the placebo group. Changes in patients with baseline HbA_{1c} ≥9 % were −1.46 and 0.28 %, respectively ($p < 0.001$ between groups).
	Newman et al., *2011* (severe)	5 mg OD	Change in HbA_{1c} from baseline, change in insulin therapy	The mean HbA_{1c} decreased from baseline to week 52 in the linagliptin group (−0.71 %) and was unchanged in the placebo group ($p < 0.001$ between groups). Insulin doses decreased with linagliptin (mean changes at 1 year: −11.6 U in overall insulin, −4.8 U in basal insulin, −23.2 U in basal and bolus insulins, −1.1 U in mixed insulins), as compared with no changes in the placebo group.
	McGill et al., *2012* (severe)	5 mg OD	Change in HbA_{1c} from baseline, change in insulin therapy	Mean HbA(1c) decreased by −0.76 % with linagliptin and −0.15 % with placebo (treatment difference, −0.60 %; 95 % CI, −0.89 to −0.31;). HbA(1c) improvements were sustained with linagliptin (−0.71 %) over placebo (0.01 %) at 1 year (treatment difference −0.72 %, 95 % CI, −1.03 to −0.41;). Mean insulin doses decreased by −6.2 units with linagliptin and −0.3 units with placebo.
Sitagliptin	*Chan* et al., *2008* (moderate and severe)	50/25 mg (moderate/ severe) OD	Change in HbA_{1c} and FPG from baseline, lipid profile	The mean change in HbA_{1c} from baseline to week 12 was −0.6 % with sitagliptin and −0.2 with placebo, whereas the mean change from baseline to 54 weeks in patients on sitagliptin was −0.7 %. At week 12, the mean change in FPG from baseline was −1.4 mmol/l with sitagliptin and −0.2 with placebo.
	Arjona Ferreira et al., *Apr 2013*	25 mg ESRD on dialysis	Change in HbA1c and safety	Change from baseline in HbA1c level was −0.72 % with sitagliptin and −0.87 % with glipizide. Symptomatic hypoglycemia and severe hypoglycemia were 6.3 % versus 10.8 % and 0 % versus 7.7 % in the sitagliptin and glipizide groups, respectively.
	Arjona Ferreira et al., *May 2013*	50/25 mg (moderate/ severe) OD	Change in HbA1c and safety	Sitagliptin was non-inferior to treatment with glipizide. HbA1C change from baseline was 20.8 vs. 20.6 %. Less symptomatic hypoglycemia adverse events with sitagliptin versus glipizide (6.2 and 17.0 %, respectively) and a decrease in body weight with sitagliptin (−0.6 kg) versus an increase (+1.2 kg) with glipizide (difference, 1.8 kg).

Table 3 continued

Drug	Reference (level of renal impairment)	Dose	Main efficacy parameters	Main efficacy findings
Vildagliptin	*Thuren* et al., *2008* (mild and moderate)	50 mg OD or BID	Change in HbA_{1c} from baseline	In patients treated with vildagliptin, the mean change in HbA_{1c} from baseline was −1.06 % in patients with mild renal impairment and −0.89 in patients with normal renal function.
	Lukaschevich et al., *2011a* (moderate and severe)	50 mg OD	Change in HbA_{1c} and FPG from baseline	After 24 weeks, the between-treatment difference in the adjusted mean change in HbA_{1c} from baseline was −0.5 % ($p < 0.001$) in moderate renal impairment and −0.6 % ($p < 0.001$) in severe renal impairment. A clinically relevant decrease in FPG was seen with vildagliptin, but with no significant differences between the groups.
	Lukaschevich et al., *2011b* (severe)	50 mg OD	Change in HbA_{1c} from baseline	Mean HbA_{1c} was reduced from baseline to week 24 by −0.87 % in the vildagliptin-treated group and by −0.29 % in the placebo group ($p < 0.001$ between groups)
	Kothny et al., *2011* (severe)	50 mg OD	Change in HbA_{1c} from baseline	Mean HbA_{1c} was reduced in the vildagliptin-treated group by −0.88 %, with a placebo-subtracted reduction of −0.56 % ($p < 0.001$ between groups).
Saxagliptin	*Nowichi* et al., *2010* (moderate and severe)	2.5 mg OD	Change in HbA_{1c} from baseline	The mean change in HbA_{1c} from baseline to week 12 was −0.86 % in the saxagliptin group and −0.44 in the placebo group. Subgroup results by baseline RI category showed greater reductions in HbA_{1c} with saxagliptin vs. placebo in patients with moderate or severe RI, but not in patients with ESRD on hemodialysis.
	Nowichi et al., *2010* (moderate and severe)	2.5 mg OD	Change in HbA_{1c} and FPG from baseline	Adjusted mean decrease from baseline to week 52 in HbA_{1c} was greater with saxagliptin than placebo (difference −0.73 %, $p < 0.001$). Reductions in mean HbA_{1c} were also greater with saxagliptin than placebo in patients with moderate (−0.94 % vs. 0.19 %) or severe (−0.81 % vs. −0.49 %) RI, but similar to placebo for those with ESRD (−1.13 % vs. −0.99 %). Reductions in adjusted mean FPG were numerically (but not statistically) greater with saxagliptin in patients with moderate or severe RI.
Alogliptin	*Nakamura* et al., *2013* (severe)	6.25 mg OD	Change in HbA_{1c} and GA from baseline	In patients on hemodialysis, HbA1c and GA levels decreased with alogliptin administration. As compared with the pretreatment levels, HbA1c and GA at 3 and 18 months, respectively, decreased from 7.1 ± 0.2 to 5.8 ± 1.6 % and from 22.5 ± 0.7 to 19.6 ± 0.6 %, respectively, at 24 months.
GLP-1 receptor agonists				
Liraglutide	*Davidson* et al., *2010* (mild)	1.2 or 1.8 mg daily	Change in HbA_{1c} from baseline	Patients with normal renal function (58 %) or mild RI (57 %) treated with liraglutide 1.2 mg daily reached the target HbA_{1c} level <7 %; 67 % of patients with normal renal function and 63 % of those with mild RI treated with 1.8 mg daily reached this target.

Abbreviations: OD = once daily; HbA_{1c} = glycated hemoglobin; U = unit; FPG = fasting plasma glucose; GA=glycated albumin; BID = bis in die (twice daily); ESRD = end-stage renal disease