ABSTRACT

Title: The place of DPP-4 inhibitors in the treatment algorithm of diabetes type 2: a Systematic Review of Cost-effectiveness Studies

Objective: To conduct a systematic review of cost-effectiveness, cost-utility and cost-benefit studies of DPP-4 inhibitors for diabetes treatment versus other antidiabetics.

Methods: Three investigators searched the CRD York, Tufts CEA Registry, MEDLINE (PubMed) databases, and grey literature through 2015. Revision of all potentially relevant titles and abstracts (1st screening), and subsequently screened full-text articles (2nd screening), according to inclusion criteria. The studies should be available as a full-text publication in English, French, Spanish, or Portuguese. A critical appraisal of the methodology and reporting was performed using the 35 item version - BMJ checklist.

Results: A total of 295 studies were identified, of which 24 were accepted in a 1st screening and 20 in 2nd screening. Compared to sulphonylureas, the ICER varied between 924-13,931€/QALY for saxagliptin, 5,949-20,350€/QALY for sitagliptin and 9,072€/QALY for vildagliptin, all as add-on to metformin. Compared to insulin, saxagliptin presented an ICER of 6,100 €/QALY (+sulphonylurea) and 6,790 €/QALY (+metformin).

Compared to sitagliptin, liraglutide had an ICER that varied between 10,436-32,869€/QALY as second line therapy. Finally, the only study on GLP-1 agonists established an ICER of 37,463€/QALY versus DPP-4 inhibitors. The majority of the studies were based on clinical trials of high quality; differences in ratios were essentially due to differences in costs of resources across countries.

Conclusion: According to commonly accepted thresholds, DDP-4 inhibitors are cost-effective versus sulphonylureas and liraglutide versus sitagliptin for diabetes type 2. However, recent evidence demonstrates that GLP-1 agonists are cost-effective versus DPP-4 inhibitors, possibly questioning the national current therapeutic guidelines.