Insulin Degludec/Insulin Aspart Versus Basal+Bolus Insulin Treatment (Insulin Glargine U100 & Insulin Aspart) in T2D in India: A Short-Term Cost-Effectiveness Analysis Based on the Step-by-Step Clinical Trial

Acceptance Code: EE507

Sambit Das[1*]; KD Modi[2]; PV Rao[3]; Muzammil Khan Pathan[4]; Manjunatha Revanna[5]; Jack Garcia Uranga[6]

Aim

- To assess the short-term cost-effectiveness of insulin degludec/insulin aspart (IDegAsp) versus basal+bolus insulin treatment (BB) in Indian setting.

Introduction

- IDegAsp is an insulin co-formulation of insulin degludec (70%) and insulin aspart (30%).(1)
- Multiple treat-to-target, randomized, controlled clinical trials have demonstrated the efficacy and safety profiles of IDegAsp in people with type 2 diabetes (T2D).(2–5)
- The effectiveness and safety of IDegAsp has also been established from the real-world evidence studies across regions.(6-7)

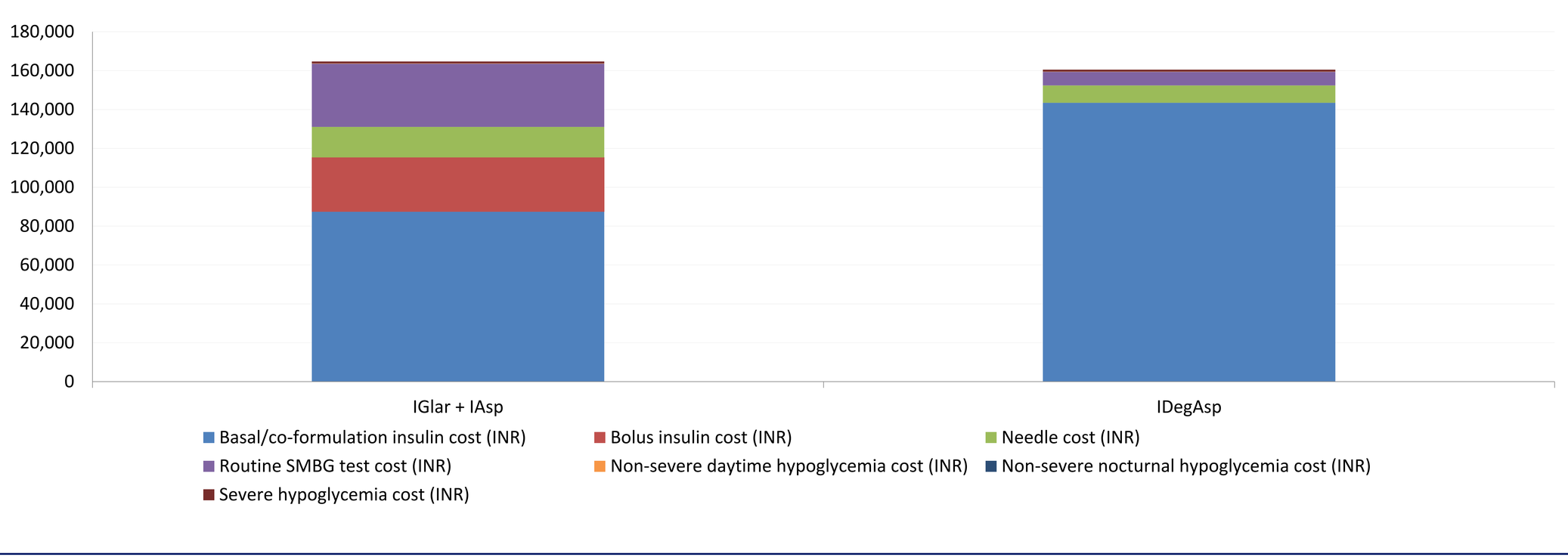
Methods

- The Step-by-step clinical trial (NCT02906917) in basal insulin ± oral antidiabetic drugs treated people with T2D confirmed a similar glycemic effect for IDegAsp versus BB insulin treatment of IGlar U100 + IAsp that was consistent over 38-weeks period with a significantly lower risk of nocturnal hypoglycemia.(2)
- A short-term cost-effectiveness model (1-year time horizon) developed in Microsoft Excel was used to estimate the incremental cost effectiveness ratio (ICER) for IDegAsp versus BB from a patient payer perspective.
- Baseline cohort characteristics and treatment effects were based on 38-week data from the trial. Drug acquisition costs based on maximum retail price in India as of June 2022 were taken into consideration, and the cost for hypoglycemia and disutility data for events and monitoring were derived from published literature.

Results

- Over a 1-year time horizon, IDegAsp therapy resulted in an improvement of 0.0086 (0.7834 vs 0.7748) quality-adjusted life years (QALYs) as compared to BB (Table 1).

Figure 1: Breakdown of cost



- Lower insulin dose requirement with IDegAsp, lesser need for monitoring and number of injections coupled with lower risk of nocturnal hypoglycemia contributed to cost saving of INR 4,219.53 (1,60,498 vs 1,64,718, dominant for ICER) vs BB (Figure 1 & Table 1).
- Result was robust as showcased by probabilistic sensitivity analysis (Figure 2).

Figure 2: Probabilistic Sensitivity Analysis

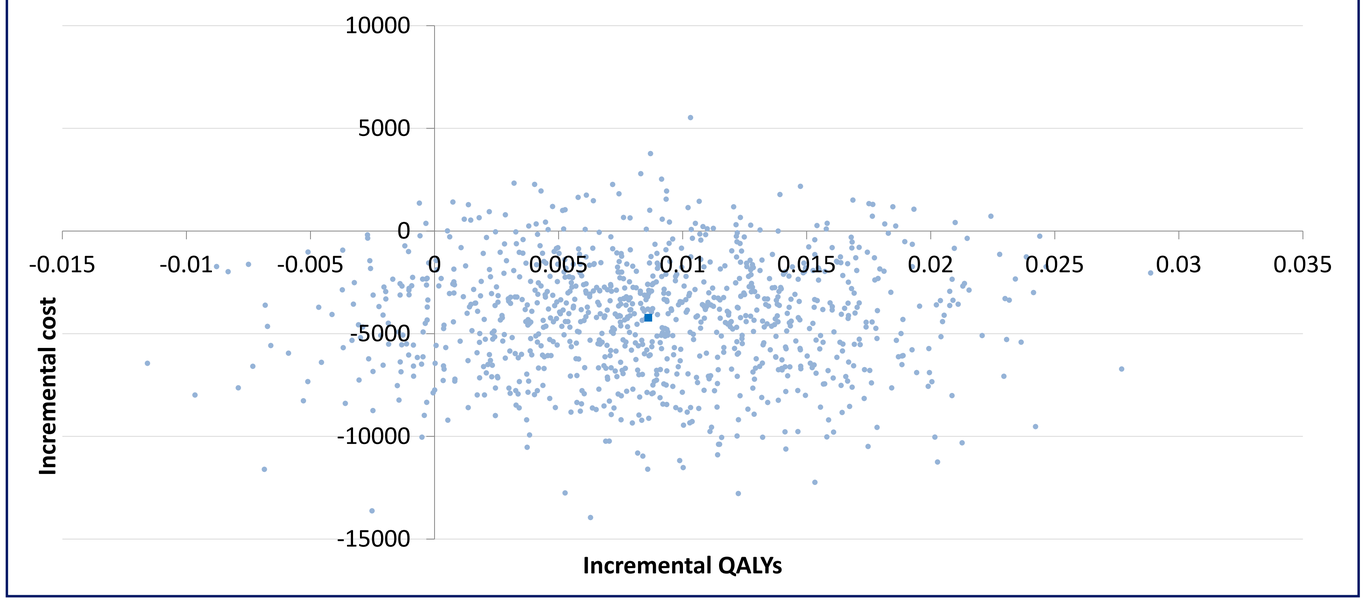


Table 1: Cost-effectiveness between two treatment options

	Life expectancy (years)	Quality-adjusted life expectancy (QALYs)	Costs (INR)	ICER
IGlar + IAsp	1.000	0.7748	164,718	
IDegAsp	1.000	0.7834	160,498	
Incremental	**0.000**	**0.0086**	**-4,219.53**	**Dominant**

Conclusion

- Based on short-term cost effectiveness analysis in Indian setting, IDegAsp is dominant (i.e., less costly, with greater clinical benefit) vs. BB for people with T2D undergoing stepwise intensification.

[1]Apollo Hospitals, Bhubaneswar, India, [2]Care Hospital, Hyderabad, India, [3]Kumudini Devi Diabetes Research Center, Ramdevrao Hospital, Hyderabad, India, [4]Novo Nordisk India Private Limited, Bengaluru, India, [5]Novo Nordisk A/S, Copenhagen, Denmark, [6]Novo Nordisk Region Asia Pacific, Dubai, United Arab Emirates

This analysis and the Step-by-Step trial was sponsored by Novo Nordisk.
The Step-by-Step trial was registered with ClinicalTrials.gov (NCT02906917).
Presented virtually at the ISPOR Europe Conference 2022, 6-9 Nov 2022, Vienna, Austria

References:

(**1**) Novo Nordisk A/S. Ryzodeg® Summary of Product Characteristics. 2017. https://www.ema.europa.eu/en/documents/product-information/ryzodeg-epar-product-information_en.pdf; (**2**) Philis-Tsimikas A et al. Diabetes Res Clin Pract . 2019 Jan;147:157-165; (**3**) Fulcher et al. Diabetes Care 2014;37:2084–2090; (**4**) Onishi et al. Diabetes Obes Metab 2013;15:826–832; (**5**) Kaneko et al. Diabetes Res Clin Pract 2015;107:139–147; (**6**) Kesavadev J et al. Med Sci (Basel) . 2021 Dec 21;10(1):1; (**7**) Fulcher GR et al. Adv Ther . 2022 Aug;39(8):3735-3748