IDEGASP VERSUS CONTINUATION OF PRIOR THERAPIES IN INDIA: LONG-TERM COST-EFFECTIVENESS ANALYSES BASED ON ARISE

Acceptance code: EE21

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INTRODUCTION

In India, 9.6% of the population was estimated to be affected by type 2 diabetes in 2021, but 77% of people with the disease were reported to be living with poor blood glucose control in 2017. Poor glycemic control can arise due to a variety of factors, and many people with type 2 diabetes can experience therapeutic inertia, defined as a reluctance to intensify to an efficacious treatment option despite ongoing inadequate control. This can manifest due to a variety of reasons, including hesitancy over injectable therapies and concerns over management of complex treatment regimens. Given the changes in physiological parameters observed with IDegAsp treatment in ARISE, long-term outcomes could be substantially improved in India.

The real-world ARISE study has associated the coformulation of insulin degludec and insulin aspart (IDegAsp) with significant improvements in glycated haemoglobin (HbA1c) and body weight, factors associated with the incidence of long-term complications in type 2 diabetes, compared with a mix of prior therapies. The present study aimed to evaluate the long-term cost-effectiveness of IDegAsp versus continuing prior therapies in India.

METHODS

Clinical and cost outcomes were projected over patients' lifetimes using the IQVIA Core Diabetes Model (v9.5+). Country-specific baseline characteristics and changes in HbA1c and body weight, as well as overall hypoglycaemic event rates, were taken from ARISE.

Table 1. Baseline cohort characteristics (India)

Characteristic	Mean	Standard deviation
Age, years	58.1	10.3
Duration of diabetes, years	14.4	8.1
Male, %	57.3	57.3
HbA1c, %	9.7	1.8
Systolic blood pressure, mmHg	131.1	18.2
Diastolic blood pressure, mmHg	77.2	9.3
Total cholesterol, mg/dL	192.8	44.7
HDL cholesterol, mg/dL	46.3	12.8
BMI, kg/m^2	26.5	3.9
Smokers, %	9.7	9.7

BMI, body mass index; HbA1c, glycated hemoglobin; HDL, high-density lipoprotein.
† Rounded to 14.0 in the analysis, as the model accepts only integer values for duration of diabetes.
‡ IQVIA Core Diabetes Model default value.

Costs were expressed from a societal perspective in India, accounted in 2021 Indian rupees (INR).

Direct costs captured medication and consumable costs, patient management costs, and the costs of treating diabetes-related complications.

Complication costs for India were informed by a targeted literature review capturing country-specific sources. Immediate IDegAsp treatment was evaluated versus a 3-year delay.

Outcomes were annually discounted at 5%.

RESULTS

In India, immediate IDegAsp was associated with life expectancy improvements of 0.05 years, and quality-adjusted life expectancy improvements of 0.12 quality-adjusted life years (QALYs), versus a 3-year delay. Combined costs in India, were estimated to INR 10,221 higher with immediate IDegAsp treatment compared with a 3-year delay, with higher treatment costs partially offset by cost savings from avoidance of diabetes-related complications and fewer days of lost productivity.

Illustration 1. Direct costs over patients' lifetimes

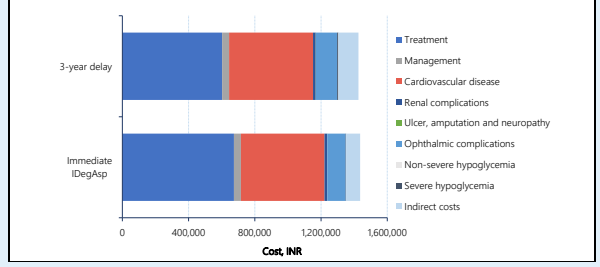
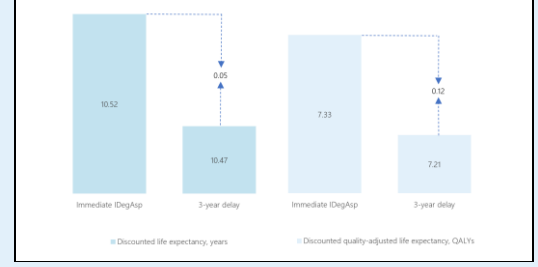


Illustration 2. Life expectancy improvements



IDegAsp was associated with incremental cost-effectiveness ratio of INR 87,206 per QALY gained in India compared with a 3-year delay.

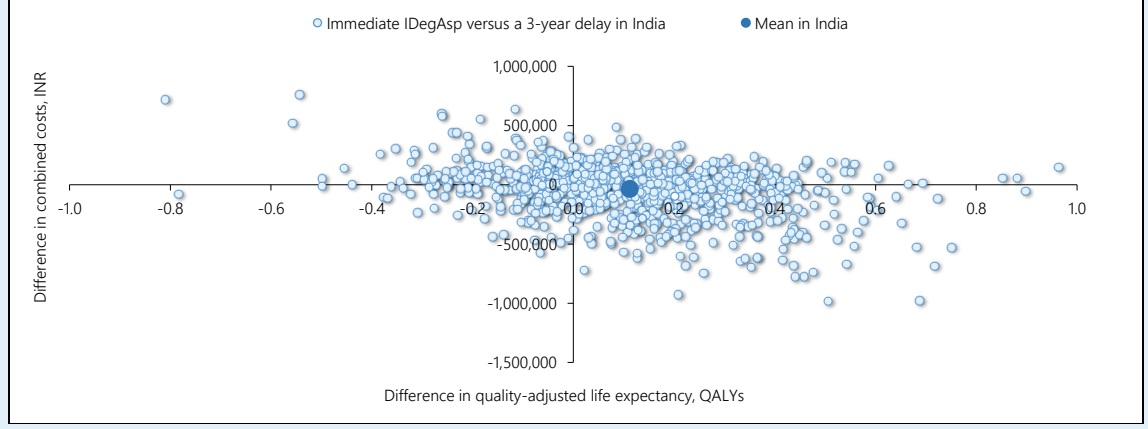
Table 2. Baseline case analysis results

Outcome	Immediate IDegAsp	3-year delay	Difference
Discounted life expectancy, years	10.52 (0.14)	10.47 (0.15)	0.05
Discounted quality-adjusted life expectancy, QALYs	7.33 (0.10)	7.21 (0.11)	0.12
Total discounted direct costs, INR	1,351,159 (37,911)	1,304,280 (37,992)	46,879
Total discounted combined costs, INR	1,436,199 (41,442)	1,425,979 (41,660)	10,221
ICER based on combined costs		INR 87,206 per QALY gained	

ICER, incremental cost-effectiveness ratio; INR, 2021 Indian rupees; QALY, quality-adjusted life year.
'Values are means (standard deviations).

A series of wide-ranging analyses were therefore performed to assess the sensitivity of the base case results to changes in input parameters and assumptions.

Illustration 3. Cost-effectiveness scatterplots from the PSA



The base case analysis used a first-order Monte Carlo approach, with second-order uncertainty captured in a probabilistic sensitivity analysis (PSA).

CONCLUSION

Based on willingness-to-pay threshold of INR 200,000 per QALY gained, immediate IDegAsp therapy is likely to represent a cost-effective treatment for type 2 diabetes in India.

Sensitivity analyses performed around the key inputs and assumptions of the modeling analysis showed that the results of the base case analysis were robust.

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Presented at ISPOR
Europe 2023
12-15 November 2023
Copenhagen, Denmark

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This analysis was sponsored by Novo Nordisk. The prices of IdeGasp used in this long-term cost-effectiveness analysis are not binding. The authors acknowledge the medical writing assistance of Ossian Health Economics and Communications.