Overview of Clinical Trial Program and Applicability of Insulin Degludec/Insulin Aspart in Diabetes Management

Ganapathi Bantwal, Subhash K Wangnoo, M Shunmugavelu, S Nallaperumal, KP Harsha, Arpandev Bhattacharyya

Abstract

Insulin degludec/insulin aspart (IDegAsp) is the first soluble co-formulation combining a long-acting insulin degludec (IDeg) and rapid-acting insulin aspart (IAsp). In patients with uncontrolled type 2 diabetes (T2DM) previously treated with insulins, IDegAsp twice daily effectively improves glycated haemoglobin (HbA1c) and fasting plasma glucose (FPG) levels with fewer hypoglycaemic episodes versus premix insulins. Further, insulin initiation with IDegAsp once daily provides superior long-term glycaemic control compared to insulin glargine with similar FPG and insulin doses, and numerically lower rates of overall and nocturnal hypoglycaemia. In patients with type 1 diabetes mellitus (T1DM), IDegAsp once daily and IAsp at remaining meals provides more convenient three injection regimen per day over conventional 4-5 injections based basal-bolus therapy. IDegAsp is an appropriate and reasonable option for intensifying insulin therapy in patients with T2DM and a relatively less complex treatment option for the management of T1DM.

Introduction

Achieving and maintaining optimal glycaemic control is an essential pre-requisite for diabetes management. Insulin therapy is the cornerstone for diabetes treatment, with basal-bolus therapy considered the gold standard for patients failing to achieve desired glycaemic targets on basal insulin alone or in combination with oral anti-diabetic drugs (OADs). However, due to perceived burdens of this regimen, a combination of rapid- and long-acting insulins in single injection may be considered a simpler and convenient approach to achieve optimal glycaemic control. Nevertheless, a co-formulation of the two forms of insulin analogues was not possible in the past due to the physico-chemical incompatibilities. Insulin degludec/insulin aspart (IDegAsp) is the first soluble co-formulation of two different insulin analogues. The present article reviews the data on efficacy and safety of IDegAsp and makes a critical appraisal of its clinical applicability in patients with type 1 (T1DM) and type 2 diabetes mellitus (T2DM).

Clinical Development Program of IDegAsp

The efficacy and safety of IDegAsp has been evaluated in the BOOST clinical trial program (Figure 1). The program included a set of six phase 3a and six phase 3b randomized, open-label, treat-to-target trials comparing IDegAsp once and twice daily with existing insulin regimens in patients with T1DM, insulin-naive and insulin experienced patients with T2DM. The phase 3a studies which were of 26 weeks duration included approximately 2,400 subjects across treatment continuum. The BOOST trials were treat-to-target trials, as per the requirements of regulatory authorities like Food and Drug Administration (FDA), where IDegAsp and the comparator groups are required to be treated to similar goals (with predefined non-inferiority margin). Treat-to-target trial designs compare investigational insulins with a standard insulin and force-titrate insulin dosages to achieve a pre-specified treatment goal. With comparable glycaemic control, comparisons of safety endpoints such as hypoglycaemia can be made to establish the risk-benefit profile of the new insulin compared to standard insulin.

The primary endpoint, measured in the BOOST program was the change in glycated haemoglobin (HbA1c) from baseline to the end of trial (IDegAsp vs. comparator), with a statistical test for non-inferiority (if non-inferiority was confirmed, superiority was tested). Secondary endpoints included were fasting plasma glucose (FPG), 9-point
In patients with T1DM, basal-bolus therapy with insulin analogues is the preferred regime over premixed insulin. The Indian guidelines on insulin therapy in patients with T1DM and the Indian Society for Pediatric and Adolescent Endocrinology (ISPAE) guidelines also recommend basal-bolus therapy as first-line choice for insulin intensification and premixed insulin only in patients with concerns on number of injections. The clinical utility of IDegAsp in patients with T1DM (≥ 18 years) was evaluated in a trial (BOOST: T1) with IDegAsp administered once daily (OD) with the main meal of the day and two IAsp injections administered at the remaining meals (three injections-day), and compared with standard basal-bolus regime using three doses of IAsp and one or two doses of insulin detemir (IDet) (four or more injections/day).

In this study, patients diagnosed with T1DM for at least 12 months, HbA1C 7.0–10.0% (inclusive), body mass index (BMI) ≤ 35.0 kg/m², and treated with either basal-bolus insulin, premixed insulin, or self-mix regimens for at least 12 months were recruited and randomised 2:1 with IDegAsp OD or IDet.

After 26 weeks of treatment, glycaemic control with the IDegAsp regime was non-inferior to standard basal-bolus regimen. No significant difference between the groups was observed in the proportion of patients achieving the HbA1c target of < 7.0% or in fasting plasma glucose (change from baseline).

Table 1: Summary of study on insulin degludec/insulin aspart compared with basal-bolus insulin in patients with T1DM

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<thead>
<tr>
<th>Study/authors</th>
<th>Study details</th>
<th>Study endpoints summary</th>
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<tr>
<td>Hirsch et al. 2012 (BOOST: T1)</td>
<td>Comparator: IDet OD or BID + IAsp as mealtime insulin</td>
<td>• Non-inferiority for IDegAsp vs. IDet in HbA1c reduction (0.75% vs. 0.70%; ETD: -0.05% [95% CI: -0.18; 0.08])</td>
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<td>Design: 26-week, multinational, open-label, parallel group, treat-to-target trial</td>
<td>• 37% lower rates of nocturnal confirmed hypoglycaemia with IDegAsp vs. IDet (3.71 vs. 5.72 episodes/patient-year, p &lt; 0.05)</td>
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<td></td>
<td>Patients: Treated with basal-bolus, premixed insulin, or self-mix regimens (n = 548)</td>
<td>• Total insulin dose was 13% lower in the IDegAsp group (p &lt; 0.0001)</td>
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IDegAsp: insulin degludec/insulin aspart; IAsp: insulin aspart; IDet: insulin detemir; T1DM: type 1 diabetes mellitus; HbA1c: glycated haemoglobin, ETD: estimated treatment difference; CI: confidence interval; OD: once daily; BID: twice daily

self-measured plasma glucose (SMPG) profiles, proportion of patients achieving HbA1c targets of < 7.0% and < 6.5% at the end of the trial, rates of hypoglycaemia (overall and nocturnal confirmed hypoglycaemia), total insulin dose and changes in body weight. Confirmed hypoglycaemia was defined as episodes with plasma glucose (PG) < 56 mg/dL, with or without hypoglycaemic symptoms or episodes classified as severe (requiring the assistance of another person, irrespective of PG levels). Nocturnal confirmed hypoglycaemia is defined as confirmed or severe hypoglycaemic episodes occurring between 00:01 and 05:59 AM (inclusive).

Trials with IDegAsp in Patients with T1DM

In patients with T1DM, basal-bolus therapy with insulin analogues is the preferred regime over premixed insulin. The Indian guidelines on insulin therapy
Table 2: Summary of studies on insulin degludec/insulin aspart twice daily compared with premixed and basal-bolus insulin regimen in patients with T2DM

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<tr>
<th>Study authors</th>
<th>Study details</th>
<th>Study endpoints summary</th>
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| Fulcher et al. 2014 (BOOST: INTENSIFY PREMIX I 3592) | Comparator: BIAsp 30 BID Design: 26-week, phase 3a, open-label, randomized, treat-to-target trial Patients: previously treated with premixed insulin (OD or BID) ± OADs ≥ 3 months (n = 447) | • Mean (SD) HbA1c reduction from baseline was -1.28 (0.94% points) and -1.30 (0.97% points) for IDegAsp and BIAsp 30, respectively  
• Non-inferiority for IDegAsp vs. BIAsp 30 in HbA1c reduction from baseline (ETD: -0.03% [95% CI: -0.18; 0.13])  
• Superior FPG reduction with IDegAsp vs. BIAsp 30 (ETD: -20.54 mg/dL, [95% CI: -27.57; -13.70], p < 0.001)  
• The estimated mean of the 9-point SMPG profile was significantly different between treatments (ETD IDegAsp–BIAsp 30: -7.21 mg/dL, [95% CI: -13.52; -0.90], p < 0.05)  
• The total insulin dose at the end of trial was 11% lower for IDegAsp vs. BIAsp 30 (rate ratio IDegAsp/BIAsp 30: 0.89 [95% CI: 0.83; 0.96], p = 0.0021)  
• 32% lower rates of confirmed hypoglycaemia (p = 0.0049) and 73% lower rates of nocturnal confirmed hypoglycaemia with IDegAsp vs. BIAsp 30 (p < 0.0001) |
| Kaneko et al. 2015 (BOOST: INTENSIFY ALL 3597) | Comparator: BIAsp 30 BID Design: 26-week, phase 3, open-label, randomized, treat-to-target trial Patients: Asian/previously treated with basal, premixed or self-mixed insulin ± metformin ≥ 3 months (n = 424) | • Mean (SD) HbA1c reduction from baseline after 26 weeks treatment was -1.38 (0.88% points) and -1.42 (0.97% points) for IDegAsp and BIAsp 30, respectively  
• Non-inferiority for IDegAsp vs. BIAsp 30 in HbA1c reduction (ETD: 0.05% [95% CI: -0.10; 0.20], p = 0.20)  
• Superior FPG reduction with IDegAsp vs. BIAsp 30 (ETD: IDegAsp–BIAsp 30: -19.10 mg/dL, p < 0.001)  
• The estimated mean of the 9-point SMPG profile was not significantly different between treatments (ETD IDegAsp–BIAsp 30: -3.42 mg/dL [95% CI: -9.73; 2.88], p = NS)  
• The total insulin dose at the end of trial was 21% lower for IDegAsp vs. BIAsp 30 (rate ratio IDegAsp/BIAsp 30: 0.79 [95% CI: 0.73; 0.85], p < 0.0001)  
• The rate of nocturnal confirmed hypoglycaemia was numerically (33%) lower with IDegAsp compared to BIAsp 30  
• Lower rates of overall confirmed and severe hypoglycaemia and numerically lower rate for nocturnal confirmed hypoglycaemia were observed for IDegAsp vs. BIAsp 30 during the maintenance period |
| Cooper et al. 2014 (TWICE DAILY IDegAsp vs. BB 3996) | Comparator: IAsp (2-4 injections/day) Design: 26-week, randomized, open-label, cross-over trial Patients: Currently treated with basal insulin (IDet, IGlar, NPH) ± OADs (n=274) | • Reduction in HbA1c was comparable between the treatment groups but non inferiority was not confirmed. (ETD: 0.10% points [95%CI: -0.04; 0.41])  
• Change in body weight and insulin dose were both lower with IDegAsp BID compared with IDeg OD + IAsp  
• The 8-point self-measured plasma glucose profile showed no significant difference between IDegAsp and IDeg + IAsp therapy, except at 90 minutes post-lunch, which was lower with IDeg + IAsp therapy compared to IDegAsp (p < 0.05).  
• The total insulin was significantly lower for IDegAsp BID vs. IDeg + IAsp (1.11 U/kg vs.1.34 U/kg; estimated ratio 0.88 [95% CI: 0.78; 1.00], p < 0.05)  
• The rates of confirmed (19%) and nocturnal confirmed hypoglycaemia (20%), are numerically lower with IDegAsp BID compared with IDeg OD + IAsp |

IDegAsp: insulin degludec/insulin aspart; IAsp: insul in aspart; BIAsp 30: biphasic insulin aspartate 30; T2DM: type 2 diabetes mellitus; HbAlc: glycated haemoglobin; ETD: estimated treatment difference; CI: confidence interval; RR: rate ratio; OD: once daily; BID: twice daily; FPG: fasting plasma glucose; NPH: neutral protamine Hagedorn; OADs: oral antidiabetic drugs; IDeg: insulin degludec

Trials with IDegAsp in Patients with T2DM

The efficacy of IDegAsp in patients with T2DM was compared with biphasic insulin aspartate (BIAsp) 30 in two phase 3a trials, including patients from ten countries (global cohort), who were previously on premixed insulin therapy (BOOST: INTENSIFY PREMIX I)10 and those from five Asian countries, who were previously treated with basal/premixed/self-mixed insulins (BOOST: INTENSIFY ALL)10. IDegAsp was also compared with...
insulin glargine, both administered OD in a phase 3a trial (BOOST: Japan). In another 26-week phase 3b trial, twice daily administration of IDegAsp twice daily (BID) was compared with insulin degludec (IDeg) and insulin aspart (IAsp) based basal-bolus therapy (IDeg OD plus IAsp 2-4 times daily) (Figure 3).

**Comparison with Premixed Analogue Insulins**

IDegAsp BID improved glycaemic control in patients with T2DM previously treated with insulin. It was non-inferior to BIAsp 30 in reducing the HbA1c levels in the insulin-experienced patients (Figure 3a, 3b). The fasting glucose levels were reduced from baseline to a significantly greater extent with IDegAsp than with BIAsp 30 in both INTENSIFY PREMIX and INTENSIFY ALL trials (p < 0.001 in both) (Table 2). In addition, the SMPG profile revealed a significantly lower plasma glucose values at 90 minutes post-breakfast with IDegAsp compared with BIAsp 30 in both the trials. Further, a lower
Table 3: Summary of meta-analysis of insulin degludec/insulin aspart twice daily compared with premixed insulin

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<thead>
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<th>Study authors</th>
<th>Study details</th>
<th>Study endpoints summary</th>
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<td>Vaag et al. 2013 (ADA poster 187)</td>
<td>Comparator: BIAsp 30 BID</td>
<td>• IDegAsp associated with significantly greater reduction in FPG (ETD: -1.12 mmol/l [95% CI: -1.38; −0.85], p &lt; 0.0001)</td>
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<td></td>
<td>Design: Post hoc meta-analysis of INTENSIFY PREMIX and INTENSIFY ALL studies</td>
<td>• Mean daily insulin dose at EOT was significantly lower for IDegAsp vs. BIAsp 30 (0.9 vs. 1.1 U/kg; estimated dose ratio: 0.84 [95% CI: 0.80; 0.89], p &lt; 0.0001).</td>
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<td></td>
<td>Patients: Pooled patient populations from two phase 3a IDegAsp BID trials (n=868)</td>
<td>• Full trial period- Hypoglycaemia, IDegAsp vs BIAsp 30:</td>
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<td></td>
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<td>- Overall confirmed hypoglycaemia- 19% lower. ERR: 0.81 [95% CI:0.67;0.98], p=0.03</td>
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<td>- Nocturnal hypoglycaemia – 57% lower. ERR: 0.43 [95% CI:0.31;0.59], p&lt;0.0001</td>
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<td>• Maintenance period- Hypoglycaemia, IDegAsp vs BIAsp 30:</td>
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<td>- Overall confirmed hypoglycaemia- 31% lower. ERR: 0.69 [95% CI:0.55;0.87], p=0.0015</td>
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<td>- Nocturnal hypoglycaemia – 62% lower. ERR: 0.38 [95% CI:0.25;0.58], p&lt;0.0001</td>
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IDegAsp: insulin degludec/insulin aspart; BIAsp 30: biphasic insulin aspart 30; ETD: estimated treatment difference; CI: confidence interval; ERR: estimated rate ratio; EOT: end-of-trial; BID: twice daily; FPG: fasting plasma glucose

In addition, a patient-level meta-analysis of the two phase 3a trials INTENSIFY PREMIX and INTENSIFY ALL was conducted to assess the difference in hypoglycaemia between twice-daily IDegAsp and BIAsp 30 in patients with T2DM.11 For the full trial period, rates of overall confirmed hypoglycaemia were lower (by 19%; p = 0.03) with IDegAsp than BIAsp 30 as were rates of nocturnal hypoglycaemia (by 57%; p < 0.0001) (Table 3). IDegAsp was associated with a numerically lower rate of severe hypoglycaemia vs. BIAsp 30 (p = 0.27). For the maintenance period (defined as after 16 weeks of treatment when the glycaemic control at the end of trial. The INTENSIFY PREMIX trial reported significantly lower rates of confirmed (32%) and nocturnal (73%) hypoglycaemia (Figure 2 a, b), whereas INTENSIFY ALL trial reported a similar rate of confirmed and lower but non-significant reduction in rates of nocturnal (33%) hypoglycaemia (Figure 2 c, d).10

Total insulin dose was required with IDegAsp BID (11% and 21% lower) than BIAsp 30 to achieve
Table 4: Summary of study on insulin degludec/insulin aspart once daily compared with insulin glargine in patients with T2DM

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<tr>
<th>Study/authors</th>
<th>Study details</th>
<th>Study endpoints summary</th>
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<tr>
<td>T2DM/Phase 3a (IDegAsp OD with largest meal of the day)</td>
<td>Comparator: IGlar OD&lt;br&gt;Design: 26-week, phase 3, open-label, randomized, treat-to-target trial&lt;br&gt;Patients: Insulin-naïve previously treated with OADs (n = 296)</td>
<td>• Superior long-term glycaemic control with IDegAsp vs. IGlar (ETD; IDegAsp–IGlar: -0.28% [95% CI: -0.46; -0.10], p &lt; 0.001)&lt;br&gt;• IDegAsp was superior to IGlar with respect to lowering postprandial glucose at the main evening meal (p &lt; 0.001)&lt;br&gt;• Lower rates of overall confirmed (27%) and nocturnal confirmed hypoglycaemia (25%) with IDegAsp vs. IGlar</td>
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IDegAsp: insulin degludec/insulin aspart; IGlar: insulin glargine; T2DM: type 2 diabetes mellitus; ETD: estimated treatment difference; CI: confidence interval; OD: once daily; OADs: oral antidiabetic drugs

glucose targets and insulin doses were near final levels), the rates of severe hypoglycaemia were lower (by 84%; p = 0.0061) for IDegAsp. Similarly, differences in rates of overall (p = 0.0015) and nocturnal confirmed hypoglycaemia (p < 0.0001, IDegAsp vs. BIAsp 30) were more pronounced during the maintenance period.

Comparison with Basal-bolus Therapy

In this 26-week randomised multinational phase 3b trial, patients with T2DM uncontrolled on basal insulin, with or without OADs (HbA1c: 7.0-10.0%) were randomised to IDegAsp BID or IDeg OD plus IAsp 2-4 times daily.12 IDegAsp was administered with the two main meals (either with breakfast and main evening meal or lunch and main evening meal) of the day. HbA1c was reduced with both regimen (Figure 2c). The 95% confidence interval for the HbA1c treatment difference did cross the pre-specified non-inferiority margin for the primary analysis (however, all pre-specified sensitivity analyses did achieve non-inferiority); with no significant difference between the regimens. The mean HbA1c reduction in the IDegAsp BID and basal-bolus groups at the end of the trial was 1.3 and 1.5%, respectively with no significant difference between the treatment groups. At the end of the trial, the mean reduction in HbA1c (1.3 and 1.5%, respectively) and proportion of subjects achieving target HbA1c (56.5 and 59.6%, respectively) were not significantly different between the IDegAsp BID and basal-bolus groups. IDegAsp BID was associated with significantly lower total daily insulin doses and less weight gain compared with IDeg + IAsp. The regimen was associated with non-significant lower rates of confirmed and nocturnal hypoglycaemia episodes.

Comparison with Insulin Glargine

The efficacy and safety of IDegAsp administered once daily with the largest meal (on discretion of each subject) was compared with insulin glargine (IGlar) OD in insulin-naïve patients with T2DM in Japan.13 IDegAsp administered with the largest meal demonstrated a superior reduction in HbA1c from baseline compared with IGlar (1.4% vs. 1.2%) (Figure 3d). At the end of 26 weeks, mean HbA1c was 7.0% with IDegAsp and 7.3% with IGlar with an estimated treatment difference of -0.28% (p < 0.001).

While the two treatment groups achieved similar FPG control, treatment with IDegAsp was superior to IGlar in terms of reducing the prandial PG increment at the evening meal with a treatment difference of 57 mg/dL (p < 0.001) consistent with the fact that 81% of IDegAsp-treated subjects administered their daily dose prior to the evening meal.13 A significantly higher proportion of subjects achieved an HbA1c of <7.0% without confirmed hypoglycaemia with IDegAsp than IGlar (43% vs. 25%; p < 0.01) (Table 4).

Clinical Applicability of IDegAsp in T2DM

In the Asian and global phase 3a trials, IDegAsp administered twice daily in patients with T2DM inadequately controlled on basal insulin or pre- or self-mixed insulin achieved clinically meaningful improvements in HbA1c of ~1.3% points.9,10 Further, the reductions in FPG and pre-breakfast SMPG observed in these trials substantiate the full 24-h coverage of basal insulin by IDegAsp compared with premixed insulin.4 The suboptimal distribution of glucose lowering effect of BIAsp 30 compared to IDegAsp may explain the differences observed in FPG control. In addition, the significantly lower mean end of trial insulin dose (11% to 21%) observed with IDegAsp BID vs. BIAsp 3010 may be linked to the differences in the glucose lowering profile of the two regimes. Unlike BIAsp 30, IDegAsp shows distinct prandial action followed by a separate, flat and stable glucose lowering effect.4

The significantly lower hypoglycaemic risk (confirmed and nocturnal) observed with IDegAsp BID dosing in the meta-analysis of the trials vs. premix insulin analogues11 may be related to its pharmacodynamic profile. The glucose infusion profile of IDegAsp consists of a distinct prandial action due to IAsp component and a separate, flat, and stable glucose lowering effect with ultra-long duration of action exceeding 42 h,
due to the IDeg component. On the other hand, the glucose infusion profile of BIAsp 30 demonstrates an initial peak; due to protaminated IAsp followed by a gradual decline that falls below detectable levels after 20 h of dosing.

The potential advantage of IDegAsp in providing both basal and prandial glycaemic coverage without hypoglycaemic burden in a single injection might address the common barriers to timely insulin intensification in patients with T2DM. Further, the observed benefits of convenience and flexibility of dosage make IDegAsp an effective alternative to premixed insulin for insulin intensification. Similar benefits are demonstrated for IDegAsp versus basal-bolus treatment. Due to the convenience of twice daily administration with any two main meals of the day, and reduced burden of multiple injections, IDegAsp may represent a simple alternative to basal-bolus regimen in patients inadequately controlled on basal therapy alone and requiring insulin intensification or when adherence to more complex regimes is challenging.

Data from the Onishi et al. substantiates the importance of choosing the right meal for effective dosing of IDegAsp OD that can impact the efficacy and safety. Further, unlike in treat-to-target trials where superiority in glycaemic control is often obtained at the expense of increased risk of hypoglycaemia or difference in dose, in the Japanese trial, greater HbA1c reductions were observed with similar end-of-trial insulin doses between IDegAsp and IGLar. Superiority of IDegAsp in reducing the PPG increment at the evening meal might explain the reason for superiority in HbA1c reduction with IDegAsp OD dosing with the largest meal in a non-inferiority trial.

Clinical Applicability of IDegAsp in T1DM

IDegAsp dosed once daily with any meal of the day in T1DM patients provides comparable glycaemic control as standard basal-bolus regimen with additional benefits of significantly lower risk of nocturnal hypoglycaemia and fewer daily insulin injections. The fewer episodes of nocturnal hypoglycaemia observed with IDegAsp OD vs. IDet might be due to the flat and stable glucose-lowering effect of the IDeg component. Further, the lower within-subject variability of IDeg (the basal component of IDegAsp) compared with IGLar in patients with T1DM might support the observation.

Overall, the BOOST clinical trial program was a true representation of the large and growing diabetes population with subjects from wide geographic areas. Further, inclusion of a trial specific to the Asian ethnic group demonstrated the importance of this cohort in the global diabetes population. However, the observed differences in some of the parameters of IDegAsp between the Asian and global cohorts need to be explored in future trials. Further, the clinical applicability of IDegAsp in T1DM patients under 18 years of age and those with gestational diabetes mellitus cannot be drawn owing to the limited safety data in these patients. Further patients with hepatic and renal disease have not been included in phase 3 trials of BOOST program and as such safety of IDegAsp is yet to be proven. The open label design of trials in the BOOST clinical trial program may have an inherent problem of selection bias by investigators and/or reporting bias by patients.

Conclusions

While insulin therapy is the cornerstone for effective diabetes management, fear of hypoglycaemia and burden of MDIs remain a major challenge for intensifying therapy and attainment of glycaemic targets. To overcome these barriers, there is a need for a simpler insulin regimen with fewer daily injections, greater flexibility and lower glycaemic excursions that would enhance treatment adherence. IDegAsp is the first soluble co-formulation comprising two insulin analogues, IDeg and IAsp, designed to provide both mealtime and basal insulin coverage. The basal component of IDegAsp shows flat, stable glucose-lowering profile with duration of action of >42 h, and less within-patient day-to-day variability. IDegAsp provides glycaemic control non-inferior to existing insulin options with significantly lower rates of hypoglycaemia in patients with either T1DM or T2DM. By providing both basal and rapid-acting insulin analogues in one injection, IDegAsp is considered as treatment option for intensifying insulin therapy in patients with diabetes. Overall, IDegAsp is a new therapeutic advancement in the era of modern insulin analogues and holds promise to address certain barriers in the treatment and management of patients with T2DM or T1DM.

References

4. Heise T, Nosek L, Roepstorff C, Chenji S, Klein O, Haahr H. Distinct Prandial and Basal Glucose-Lowering Effects of Insulin Degludec/Insulin Aspart (IDegAsp) at Steady State in Subjects with Type 1


