PRIMARY CARE DIABETES

Choice of Insulin Coformulations: Biphasic Insulin Versus Insulin-GlP1RA

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Abstract

This communication presents a pragmatic approach to describe the phenotypes which match with preferential usage of dual phase insulin or basal insulin + glucagon-like peptide 1 receptor agonist (GLP1RA) coformulations. A comprehensive evaluation, including severity and style of glycaemia, clinical presentation, comorbidities, complications, and culinary preference, allows efficient choice of insulin coformulation. This framework helps in initiation, intensification and interchange of injectable therapy, in an apt, and ept, manner.

Keywords: BIAsp, GLP1RA, glargine, insulin, Biphasic insulin, IGlarLixi, lixisenatide, IDegAsp, LisproMix, IDegLira, person centred care, premixed insulin.

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Table-2: Choice of Injectable Therapy.

Factors	Premixed insulin/ dual insulin coformulation	Insulin + GLP1RA coformulation
Severity & style of diabetes	• Severe hyperglycaemia • Symptomatic diabetes	• Absence of Sudden emergency or urgency related to glycaemic status
Clinical context	• Sick/catabolic status (acute comorbidity requiring early resolution of hyperglycaemia) • Severe gastroparesis • Special situations (pregnancy, lactation, renal disease, hepatic disease) • Surgery planned in near future • Slim (lean) habitus	• Stout (overweight/obese) • Syndrome of ASCVD • Sibling (family) h/o ASCVD/obesity • Safety: hypoglycaemia
Culinary preferences	• High carbohydrate diet esp. simple carbs • Regular meal patterns	• Infrequent/irregular meal pattern • c/o increased hunger/reduced satiety

Introduction

Recent advances in pharmacotherapeutics have led to the availability of newer insulin coformulations. These include preparations of basal insulin with rapid acting insulin (dual phase insulins) and basal insulin with glucagon-like peptide 1 receptor agonists (GLP1RA).[1] (Table 1). While basal insulin alone, or GLP1RA alone, can be used as initial injectable therapy, there is a case for initiating dual injectable therapy. Such treatment may be required in person with high HbA1c at baseline, similar to the dual or triple oral therapy that is suggested for persons with high baseline HbA1c.[2] Coformulations may also be used as an option for intensification, if monotherapy is ineffective or inadequate. Interchange of coformulations may be required if existing injectable preparations are associated with safety or tolerability challenges.[3]

Table-1: Insulin Coformulations.

Biphasic or dual phase insulin coformulations
- Premixed human insulin 30:70; 50:50
- LisproMix 25:75; 50:50
- BIAsp 30:70; 50:50
- IDegAsp 30:70

Basal Insulin +GLP1RA coformulations
- IDegLira
- IGlarLixi

*BIAsp = biphasic aspart insulin; GLP1RA=glucagon-like peptide 1 receptor agonist; IDegAsp=insulin degludec aspart; IGlarLixi=insulin glargine lixisenatide; LisproMix = biphasic lispro insulin.

Choice of Coformulations

Existing guidelines promote a person-centred choice of injectable coformulations, but do not specify how physicians should decide which preparation to prescribe.[4] Objective markers of glycaemia, including postprandial excursion, help choose between various insulins[5,6] but may not suffice to differentiate and prioritize the use of dual phase insulins vis a vis basal insulin-GLP1RA formulations.

A comprehensive analysis of the clinical context, however, can certainly assist in rational choice of therapy. Table 2 lists the factors that must be considered in this evaluation. The severity and style of glycaemia, or the glucophenotype,[7] clinical considerations include comorbidities and complications, therapeutic planning such as surgery or corticosteroid usage, and culinary or dietary patterns, are part of this assessment.

Good Clinical Sense

While there is considerable subjectivity in this approach, it

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provides a pragmatic and practical framework for clinical decision making. It must be noted that irrespective of the insulin preparation used, glucose monitoring and dose titration are mandatory. This ensures effective glucose control, without causing hypoglycaemia. It must also be reiterated that the choice of glucose lowering therapy depends upon multiple factors, which are beyond the purview of this communication.

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