PRIMARY CARE DIABETES

Inhaled Insulin: Place in Therapy

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Abstract

Inhaled insulin is a non- injectable person-friendly preparation. Approved for use in adults with diabetes, inhaled insulin offers prandial control, without meeting basal requirements. This communication describes the rational placement of inhaled insulin in clinical practice. It classifies its use as initiation, interchange and intensification strategies, suggests homologous (purist) and heterologous (hybrid) structured regimens, and proposes fixed, formative and flexible styles of usage. This frame work supports and simplifies the use of inhaled insulin in clinical practice.[2]

Keywords: Afrezza, diabetes, glycaemic control, insulin, person centred care, prandial insulin

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Increasing Burden

Insulin has been serving humankind for over a century now. Its injectable mode of administration, however, reduces its acceptance amongst persons living with diabetes.[1] This creates an insulin inertia, which prevents timely initiation and intensification of therapy.[2] Inhaled insulin, approved in the USA since 2014, has now emerged as a suitable non-injectable alternative to prandial insulin.[3] Though earlier preparations have been discontinued, the Technosphere technology of Afrezza has proven its efficacy and safety in the INHALE clinical trial programme.[3-5] This communication describes the clinical placement of inhaled insulin (Table).

Table-: Clinical use of Inhaled Insulin.

Concept	Description	Indication
STRATEGY		
Initiation	First line prandial insulin	Apprehension regarding injectable therapy
Interchange	Shifting from injectable to inhaled insulin	Dissatisfaction or intolerance with injectable therapy (e.g., high index of intrusion, local site reaction); high postprandial glucose excursions
Intensification	Adding inhaled insulin to preexisting regimen	Twice daily premixed regimes + one inhaled bolus; basal insulin + inhaled bolus(es)
STRUCTURE		
Homologous (purist)	All prandial doses are inhaled	Need for uniformity
Heterologous (hybrid)	Some prandial doses are inhaled; other injected	Some prandial doses are inhaled; other injected
STYLE		
Fixed	Physician-led prescription; no scope for change	Patient preference; need for uniformity
Formative	Gradual change in number of inhaled doses	Anticipated change in biomedical requirements, gradual development of comfort with inhaled mode of administration
Flexible	Person-led choice of therapy; may change from meal to meal, day to day	Variable life style, variable psycho socioenvironmental factors.

Strategies

Inhaled insulin can be prescribed whenever prandial glycaemic control is needed.[3] It can be used for initiation of therapy, in persons with type 1 and type 2 diabetes, along with injectable basal insulin. All contraindications to the preparation, such as smoking, pregnancy and severe pulmonary impairment, must be ruled out. Persons who are unwilling, or unable to take multiple injections, or uncomfortable with the idea, can initiate inhaled insulin.

The preparation can also be used as an alternative, by interchanging prandial injections to inhaled insulin. This is suggested if the person is dissatisfied with existing therapy. This may be due to various reasons related to safety and tolerability, including local site reactions or difficulty in self-injecting.

Inhaled insulin may be used for intensification, i.e., adding one dose to a preexisting premixed or basal plus regimen. This is suggested when current therapy proves ineffective, and the individual declines an increase in the number of injections.

Structure of Regimen

Inhaled insulin may be used as a homologous or purist structured regimen, i.e., all bolus doses will be inhaled. At the same time, a heterologous or hybrid structure is also acceptable. Examples included premixed insulin twice a day with inhaled insulin covering the third meal; basal plus injectable regimen with one or two inhaled doses, e.g., at

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college or workplace, or basal bolus/basal plus regimen with inhaled insulin covering unplanned snacks.

Style of Usage

Inhaled insulin may be prescribed, and used, in a fixed, formative or flexible style. A fixed regimen implies using the product (along with others) in a fixed manner, whether as part of homologous or hybrid regimen. Formative style suggest that inhaled insulin is initiated as a part of a basal plus, or basal bolus regimen. As patient comfort increases, the frequency of inhaled insulin usage is increased gradually.

Flexible style of use as characterized by a high level of patient empowerment. In this, the individual uses either inhaled or injectable insulin, depending upon their preferences and position. They may choose, for example, to use inhaled insulin while at the workplace or on vacation, but take injections when at home. The need for enhanced glucose monitoring and pharmacovigilance while switching modes of administration must be emphasized.

Synopsis

Inhaled insulin represents flexibility and freedom for the person living with diabetes. It must be used with diligence and discipline, however. Its non-injectable feature improves patient acceptance and satisfaction. Therefore, it can be offered as an alternative to injectable prandial insulin, wherever indicated. At the same time, the monitoring and vigilance that is required with other insulins must be followed.

Clinical trials support the use of inhaled insulin as an effective and efficient means of glucose control. Real world evidence will share various person-friendly strategies, structures and styles that can be implemented to help improve the strength and satisfaction of diabetes care.

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