

# Insulin: The wonder drug

We all probably know about the basics of diabetes, like the principles of nutrition and physical activity. Now, **Times Wellness** tells you all about the drug therapy of diabetes, mainly the insulin

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Last few years have seen a number of new drugs coming up for the rescue of diabetics. Indian pharma market is serving almost the same menu as their western counterparts, some times even more. Oral drugs for diabetes act by either increasing the insulin secretion from the native islets (part of the endocrine pancreas which harbours the beta cells that generate insulin) or by increasing the sensitivity of the existing insulin in the body. The former group is called insulin secretagogue like Glibenclamide, Glimepiride, glipizide, Repaglinide, etc and the later class is called insulin sensitizers like Metformin, Rosiglitazone, Pioglitazone. Another class of less frequently used drugs in India is alpha glucosidase inhibitors which act on the gut lining to retard the absorption of carbohydrates from the gut lumen like Acarbose, Miglitol and Voglibose.

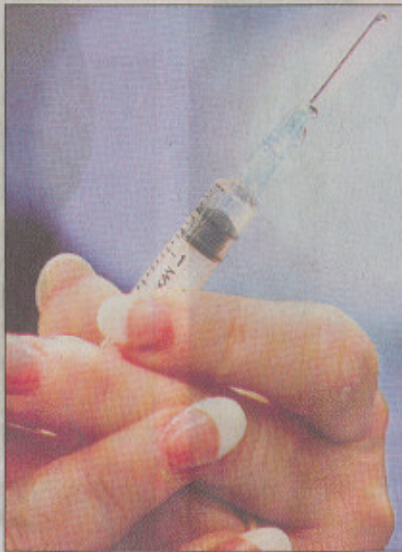
The latest class of drugs called DPP-4 inhibitors though expensive are very promising, they increase the endogenous insulin and also increase its sensitivity

## INSULIN

Gradually the body's insulin stores become deficient in insulin

due to the natural death of the beta cells over the years. This process is largely predetermined genetically. Once insulin deficiency becomes overwhelming exogenous insulin usage is necessary to achieve good glycemic control. Oral drugs at that time stop working except the sensitizers. Initially, the endocrinologists increase the number of drugs by adding one after the other but finally when they come to know that the patient will now not respond to the orals they advise insulin. About 50 % of Type-2 Diabetics need insulin for keeping HbA1C below 7 gm after 10 years of diabetes. Few may need very early in their life. Insulin can be added to the ongoing treatment of the oral drugs or it can totally replace the orals.

Discovery of insulin was one of the greatest milestones in the history of modern medicine. Insulin was discovered in 1921 by Banting and Best for which they got Nobel prize. Since 1921, insulin has saved millions of lives around the world. Insulin is a peptide hormone made up of 51 amino acids. Insulin from different species differ only by a few amino acids. Today, the usage of animal insulin is declining and genetically engineered (in yeast or in bacteria) insulin which is a copy of the human insulin is widely used. Designer insulins are



now being synthesized which have a better action profile and have less chances of hypoglycaemia (problem of low sugar), these are called analogue insulins. All insulins available in the world market are available in India. GLP-1 analogues Exenatide and Liraglutide are newer injections which are given sometimes with insulin to potentiate its action.

The duration of action of various insulin differs and

clinicians tailor the dose and the timing of insulin according to ones need. The insulin can be rapid acting, intermediate acting or long acting or their mixtures. A diabetic must know what kind of insulin he is on.

Insulin is an extremely safe drug. There are hardly any side effects as compared to the oral drugs. The fear of needle is more imaginary than actual. The needles currently available are so fine that the prick is almost painless. Various injecting devices are there to help needlephobic patients. Insulin pump is a mobile sized device which can be worn on the belt, it keeps on pumping insulin beneath the skin at a

desired rate. It is very useful for the children in whom diabetes control is difficult. One can do all kind of routine activities of daily living with the pump. At present the cost of the pump is prohibitive for most of the diabetics in India. The best site for insulin injection is the fat beneath the skin on the front of the abdomen. All patients are taught the technique of insulin injection. One must not run away when insulin is prescribed. Make use of the nice therapies and keep yourself fit and fine.

*(The writer is DM, Endocrinologist, Fortis Escorts Hospital, Jaipur)*