

Editorial



Insulin - The Natural Polypeptide for Diabetes Management

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Insulin is a remarkably effective polypeptide that is most potent & natural therapy of pancreatic diabetes mellitus. No less than five noble laureates owe their glory to this molecule. However, it is one of the most underused medical therapies of mankind. Unfortunately it is poorly prescribed by so many physicians who treat diabetes and so unsuccessfully used by so many individuals who have diabetes.¹ This is essentially due to heightened risk perception of an injectable agent, with some unfounded hypoglycemia and weight concerns.² As Elliot Joslin said way back in 1923 "Insulin is a remedy primarily for wise and not for the foolish, whether they be patients or doctors. Everyone knows it requires brains to live long with diabetes, but to use insulin successfully requires more than brains."^{1,3} It is indeed a drug of wise men and is a true lifesaving medication. This real cost effective molecule is an very old drug that was discovered accidentally by a team of Orthopedic Surgeon, Physiologist and Chemist with their associates.⁴ It can save lives and reduce the morbid burden of complications simply by efficient lowering of HbA1c and mimicking normal glycemic physiology.¹ The concentration of glucose in the plasma of healthy individuals remains within a normal range despite large fluctuations in nutritional intake and physical activity. The classic triad of insulin, diet and activity dominates basic principles of diabetes management. The fundamental reason for this is the precise balance between insulin secretion from pancreatic β -cells and insulin action on sensitive metabolic tissues, primarily adipose tissue, liver, and muscle.⁵

The Harvard Medical College's leading endocrinologist Prof David Nathan's quote is so true about Insulin "Insulin is the oldest of the hypoglycemic agents. It is also the only one that occurs naturally in humans and has no upper dose limit. Higher doses of insulin virtually always result in lower glucose levels, and numerous studies have demonstrated that glycemic levels are nearly normal when adequate doses of insulin are used. Although insulin is theoretically the most potent of the drugs, it is often not used in the doses necessary to achieve recommended glycemic goals. The risks of insulin therapy include weight gain (like all of the hypoglycemic agents, except metformin), hypoglycemia, and in very rare cases, allergic and cutaneous reactions. The chief barrier to its use, especially early in the course of diabetes treatment, appears to be the reluctance to use an injectable drug; fear of weight gain and hypoglycemia may also be disincentives. However, severe hypoglycemia is extremely rare, as compared with its frequency during intensive treatment in patients with type 1 diabetes. Moreover, insulin injections are generally painless and considerably less uncomfortable than finger-stick testing of glucose levels, whose use has been

widely promulgated and adopted. Regardless of the reason, insulin therapy is often reserved as a last resort."² Its time to change and use Insulin not just as a replacement hormone in Type 1 Diabetes, Gestational Diabetes or Secondary Diabetes but in the garden variety Type 2 Diabetes. Hospital based Insulin Scales in the past were the sliding scales which are now replaced by insulin infusion pumps and protocols. Now we see sliding-scale insulin as a relic from years past.⁶ Although it still means different things to different people, this debate is about much more than simple semantics.⁶ Using insulin supplements and changing insulin doses based on food intake and Self Monitoring Blood Glucose (SMBG) is the real concept.⁶ We must now move forward with our improved methods of diabetes management and leave the sliding-scale insulin to the medical history books.⁶ It is now possible to mimic natural insulin physiology especially by using it with SMBG and pattern based meal timed protocols for each diabetic. Novel technologies both in self monitors as well as Insulin pens make the whole option more flexible and pain free.

The real crux is early and optimal use of Insulin beyond emergency, hospital and replacement in office Type 2 diabetes. Due to delayed diagnosis of Type 2 Diabetes almost all Asian Indian Diabetics at diagnosis have some amount of beta cell dysfunction despite of insulin resistance. The lean Indian phenotype ensures that we tap the anabolic potential of Insulin. The beta cell defects both functional & structural are seen in more than 50% at diagnosis of Type 2 Diabetes and despite of Insulin Resistance with Lifestyle and Metformin Insulin is the most effective antidiabetic therapy. It is safe, effective, potent and possibly the true endothelial modulator for a Typical Asian Indian Diabetic.

References

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