INSULIN THERAPY IN NWFP PAKISTAN

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The management of Type I and Type II Diabetes Mellitus has improved because of tremendous improvement in Insulins over the years, but unfortunately majority of patients in our country cannot afford these, especially the human insulin, and are deprived of the benefits. Access to insulin should be regular and uninterrupted.

Insulin therapy has changed the outlook of Type I - IDDM from certain death to almost normal existence. The discovery of Banting and Best in 1921, was the greatest breakthrough in this field. Since then continuous improvement in Insulins is taking place. In I980\s Recombinant DNA origin insulin came into use. These insulins are less antigenic, purer, better absorbed and lesser doses are required as compared to animal origin insulins. Human Insulin was first product of biotechnology to enter the clinical Arena[2].

By 1950 exact structure of insulin molecule was known[3]. In developed countries the prognosis of Diabetes has dramatically improved over last twenty years with life expectancy approaching towards normal, especially in Denmark[4].

The Diabetes Control and Complications Trial (DCCT) and UKPDS showed that elevated blood glucose is the greatest risk factor for microangiopathy and microangiopathy. Strict glycemic control is advocated by both the studies[5,6]. The DCCT trial has shown that loss of vision and retinopathy decreased by 50%, Amputation 50%, and nephropathy by 35-40% in whom nomioglyceamia was maintained[5].

The problems in this part of the world will almost be the same as in developing countries; with individual differences. The developing countries have 84% of the world's population and about 65% of its diabetic patients, yet they use only 30% of the world's total insulin each year. This is in sharp contrast with industrialized countries, which have 35% of the world's population but currently use about 70% of the world's total insulin each year[7].

Most of the patients find cost of the insulin high especially the newer genetically engineered Insulins, as opposed to Beef Insulins. Availability and access to Insulins is poor, especially in our rural areas. International Diabetes Federation (IDF) conducted a survey, they reported that in fifteen

nations insulin was not always available and in two nations insulin was available less than 25/o of the time[2].

Commonly available Insulins	Type	Cost of 1000 units/Ks.	Company
Regular	Beef	185	Lilly
NPH	Beef	192	Lilly
Humulin N		450	Lilly
Humulin R		450	Lilly
Humulin 70/30		395	Novo
Mixtard 30 HM		427	Novo
Act rapid human Regular		454	Novo
Insulated human NPH		454	Novo

Because of the poverty, ignorance, and high cost of Insulins compared to oral drugs most of the patients tend to stop Insulins and go on to oral therapy themselves. This brings them back with high glucose, complications like ulcers, infections, retinopathy and nephropathy. This is daily occurrence in our patients and even in those who have been educated about benefits of insulin, which is cost affective in the long run. Wrong beliefs are commonly held among the public, viz., Insulin is addictive or it damages the organs.

The patients are painstakingly repeatedly instructed about the injection methods, site and timings. Most of the patients who can inject themselves are taught to inject themselves. Still about 70% of these tend to miss the doses off and on, because of various excuses at home and difficulties.

Sometimes Insulins are not available in far- flung areas and this leads to stoppage of insulin injections. Also like many drugs, shortages occur from time to time.

Insulin pens are available but very few patients here use them, perhaps cost being one factor and using syringes is easier.

Here obviously beef Insulins have to be tried first in especially poor patients. Diabetes care is multidisciplinary. Here the problems are immense, as there are no multidisciplinary teams:

a. There are no Diabetic specialist nurses, which are now backbone of any Diabetes care program in U.S.A. and European countries. Hence Nurses have to be trained in this field, which can be approached by patient easily to sort out their problems, from dose to injection technique and availability of insulin.
b. Dietician: to impart necessary- dietary advice to individual patients and to keep a check on them.

c. Podiatrist: to look after foot care, teaching and treating ulcers.
d. Obviously Medical staff has to be taught and trained regularly in this field so that they care for patients on the wards and in OPD's.

So permanent dedicated nursing and medical staff are required and transfers should be infrequent.
Soon after DCCT results J. Santiago recommended:

"*To allow nurses, Dietician and other health professionals who have received appropriate training and periodic recertification's to make periodic health assessment and simply insulin, diet, exercise and other life style adjustments without knowing to track down physician specialist for a signature: we did in the DCCT and it worked. I think we should try it in the real world "developed or not* "[8,9.]

Drugs companies should bring down the prices of newer Insulins, and government should not levy taxes on this life saving therapy.

In many of the developed countries like Denmark, France all Insulins are human[1].

Also drug companies, plus government must evolve some system of supplying, Insulins to the poor patients, perhaps through the diabetic wards, but it is duty of the government to evolve a regular system in which patients get supply easily and the control will prevent complications which will be cost effective. Drug companies can form a pool for the third world

countries from which Insulin and help to various countries can be provided.
External insulin pump treatment has grown dramatically since 1993 in U.S.A. and Germany by 40% per year, representing 78,000 and 20,000 patients.

Obviously it is very costly and out of reach for patients here for the present.
In summary we have to develop a multidisciplinary approach, educate the health professionals, educate the patients, make sure insulin is available, injected properly and nomioglyceamia or near normoglyceamia is achieved. Government and drug firms have to take active part in this for the sake of the public and prevention of devastating complications which will be cost effective in itself [10,13].

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