Prakash V Diwan, J Diabetes Metab 2018, Volume 9
DOI: 10.4172/2155-6156-C1-077

Prakash V Diwan

Indian Pharmacopeia Commission, India

Pursuit of oral insulin is a reality: Is it simply a matter of when?

Oral insulin delivery has been a promising and interesting research area and can revolutionize treatment. Several studies have achieved positive results which includes nanotechnology. Considerable problems of developing oral insulin are because of small therapeutic index and short half-life which limits the success. Several insulin delivery systems, such as tablets, capsules, intestinal patches, hydrogels, microparticles and nanoparticles, have been explored to deliver insulin without much success. Various types of nanoparticles are currently studied for insulin delivery in diabetes treatment such as polymeric biodegradable nanoparticles, polymeric micelles, ceramic nanoparticles, liposomes and dendrimers. Exubera, as the first and until now only inhaled insulin with a market approval, was not a market success due to insufficient uptake in the market. The intestinal micropatches for oral insulin delivery is well thought approach. The colon-specific drug delivery system has many advantages. Encapsulation of insulin in vitamin B12-coated dextran nanoparticles has been considered in complementing diabetes therapy by taking advantage of enhanced insulin absorption through vitamin B12 intrinsic factor receptor ligand-mediated endocytosis via intestine ileocytes. Artificial pancreas is the future of diabetes treatment. It is known that intestinal epithelial cells have insulin receptors on their apical surfaces. Researchers think that β-cell implants or Island of Langerhans transplants would be a more feasible and perhaps better option. Current research has been going on to deliver insulin experimentally and this has been achieved by the developing smart insulin patch. Oral version of acylated insulin analog with a half-life of ~70 hours is a great breakthrough. The herbal medicines are symbol of safety in contrast to synthetic drugs. The life style is becoming techno savvy and we are moving away from nature. The 80% of world population is using herbal medicines. *Gymnema sylvestre* also increases the amount of insulin in the body and increase the growth of β-cells in pancreas and many more in armamentarium of Indian herbal wealth. Most of the developments of these companies have failed in phase II clinical studies, showing insufficient metabolic control in patients with diabetes. However, researchers are concerned that oral insulin could raise the risk of certain types of cancer. Addressing these issues successfully will create a new paradigm in diabetes treatment. Future advance in drug delivery could still make it a reality.

Biography

Prakash V Diwan has obtained his PhD from Postgraduate Institute of Medical Education and Research, Chandigarh, India. He has contributed in the areas of novel drug delivery systems and drug discovery. He has published over 200 papers in pre-reviewed journals. He has delivered guest lectures in India and abroad. He has also received many awards instituted by Indian Pharmacological Society. He has served as the Founder Director of NIPER, Hyderabad and Fellow of Royal Society of London, FRSC, London. Presently, he is working as Technical Advisor, Indian Pharmacopeia Commission, Government of India; Director of School of Pharmacy, Hyderabad and Consultant for Indian Institute of Technology, Hyderabad.

diwanpv@gmail.com

Notes: