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Design of chronotherapeutic drug delivery systems for the management of diabetes mellitus

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Chronotherapeutic system are designed over the concept of chronopharmaceutics in which there is a specificity in delivering higher amount of drug in a burst at circadian timings correlated with specific pathological disorder to achieve maximum drug effect. In these systems there is a transient release of certain amount of drug within a short period of time immediately after a predetermined off-release period. Diabetes is one of the diseases where the constant drug levels are not preferred but needs a pulse of therapeutic concentration when the blood sugar levels are high. i.e., after the meals or at night (may be because of Somogyi Effect or Dawn Phenomenon). Circadian variations of glucose and insulin in diabetes have been extensively studied and the clinical importance of insulin substitution in diabetes has been well exploited. The chronotherapeutic system can be designed to achieve many pulsatile drug deliveries from a single system at the time when the blood sugar level is high i.e., after breakfast, after lunch and post dinner or late at night. The once a day drug Chronotherapeutic drug delivery system can be optimized to deliver the drug at the time of requirement of the body and at the site of its action and absorption in the gastro intestinal tract. The system also has the capability to incorporate single drug or multiple drugs with different mechanisms and site of action to achieve wholistic patient friendly treatment for the management of the disease.

Biography

Nimisha Jain is M.Pharm in Industrial Pharmacy from SGSITS, Indore and currently registered for PhD from RGUHS, Bangalore. She has published more than 10 papers in reputed journals and has presented several presentations in conferences. She is currently serving in Al-Ameen College of pharmacy and involved in research, teaching and guiding.

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