

Chronopharmaceutics-The Future of Drug Delivery

Anil K Philip*

Associate Dean, School of Pharmacy, College of Pharmacy and Nursing, University of Nizwa, Nizwa, Sultanate of Oman

***Corresponding Author:** Anil K Philip, Associate Dean, School of Pharmacy, College of Pharmacy and Nursing, University of Nizwa, Nizwa, Sultanate of Oman.

Received: September 04, 2019; **Published:** September 23, 2019

Oral drug delivery to the patient is the most convenient form of drug delivery. Ideal dosage form should reach the therapeutic window fast and maintain longer activity. Reports claim drug administration timing is important for a best therapeutic activity. Drugs usefulness or its toxicity is altered based on its dosing time. It has correlation with the rhythms of processes (biochemical, physiological and behavioral). The chronopharmacological phenomena influence the medication's pharmacodynamics and pharmacokinetics due to variations in administration timings. Health science sector is lately more aware of the circadian rhythms. It is now a well-known fact that all living animals have a biological clock, and all processes in them depend on it. Thus, for chronotherapy, knowledge of the circadian rhythm becomes beneficial. The basis of chronopharmaceutical drug delivery systems development is having drug delivery lag times match the circadian rhythm. There is a relation between a diseases cyclic rhythm and medication timings.

Chronopharmaceutics is a developing science that combines the knowledge of pharmaceutics and chronobiology. Advances in genome therapy and nanotechnology have helped in better management of diseases. The merging of chronobiology and traditional pharmaceutics is optimizing medicines known as Chronomics. It is correlated with the 24-hour circadian rhythm of various processes. The chronopharmacological phenomena influences a medication's pharmacodynamics and pharmacokinetics. Biological rhythm to chronotherapy can be achieved from the pharmaceutics standpoint. For this the dosage form releases the drug at particular times synchronizing the drug concentrations to rhythms in the disease activity. Developments in medication delivery in time-modulated fashion will help disease management.

Scientific evidence suggests a need to develop formulations of drugs for few diseases. Major hurdles hinder large-scale production and use of chronopharmaceutical drug products. It includes system design and rhythmic biomaterials. Also, engineering processes, modeling, and regulatory guidance contribute to these hurdles. The structure-property relationship is important for successful design and development of new formulations. Mathematical, statistical and numerical methods help in prediction of process thereby helping in drug delivery design.

Volume 7 Issue 10 October 2019

©All rights reserved by Anil K Philip.