

Pharmaceutical Summit and Expo

October 08-10, 2015 New Delhi, India

Newer drug delivery system: Pros & cons

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Drug delivery is the method or process of administering an Active Pharmaceutical Ingredient [API] to achieve a therapeutic effect in humans and animals. Due to drawbacks associated with conventional therapies, i.e., fluctuation in plasma concentration, decrease concentration of drug at site of action, increase cost of therapy and decrease patient compliance, New Drug Delivery Systems [NDDS] to optimize therapy with established drug are required. Drug delivery technologies are patent protected formulation technologies that modify drug release profile, pharmacokinetic parameters for improving product efficacy and safety as well as patient convenience and compliance. Various drug delivery techniques include oral, ophthalmic, transdermal, pulmonary, intravaginal/intravesical, implant, prodrug, gene therapy, targeted drug delivery systems, etc. NDDS are therefore help increase therapeutic efficacy, patient compliance and decrease adverse drug reaction as well. However, NDDS has its own limitation and drawbacks, i.e., NDDS are costly. Talking about particulate carrier system, i.e., nanoparticle, liposomes, etc., particulate nano-carriers have been praised for their advantageous drug delivery properties in the lung, such as avoidance of macrophage clearance mechanisms and long residence times, however instilled non-biodegradable polystyrene nano-spheres with small diameters and thus large surface areas have been shown to induce pulmonary inflammation. Similarly, in polymeric prodrug system, prodrug are used which get bio-transformed in the drug within the body hence the use of prodrug as drug depends upon the body's ability to release the drug in the body [inter individual variations in drug response]. It may be concluded that drug delivery therapeutic system is defined as drug containing preparation or device that release one/more drug at predetermined rate over a fixed period of time either systemically or at specified site (target organ) and with the vast database of different studies the science of site specific or targeted delivery of these drugs will become wiser and manifestation of these strategies in clinical practice seems possible in near future.

Biography

Rajendra Sharma is a Medical Doctor who hails from Uttarakhand. He is a keen research worker and having his interest to learn further about newer development in pharmaceutical sciences. He has worked with pharmaceutical organization in different settings like clinical research, pharmacovigilance and product development before joining Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Jolly Grant, Dehradun. He is currently a tutor in Department of pharmacology, Himalayan Institute of Medical Sciences, Dehradun

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