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Pharmaceutical development of a parenteral liposomal formulation for Azacitidine

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Azacitidine was used in the treatment of myelodysplastic syndrome, in the present study, inclusion of Azacitidine in liposomal formulation has proved to be good approach to eliminate the toxicities and improve drug antitumor activity. We formulated Azacitidine liposomes containing Hydrogenated soy phosphatidylcholine, 1,2-Distearoyl-sn-glycero-3[Phospho-rac-(1-glycerol..) (Sodium Salt) [DSPG-Na] and Cholesterol by dried thin film hydration technique. Particle size analysis, zeta potential, %free drug are strongly affected by the different lipid concentration and result shown F5 formulation have the optimum % free drug, Particle size and F2 formulation shown highest Percent drug release when compared to the F4 & F5 formulations. The release kinetics of F2, F4 and F5 formulations were studied. All the formulations follow zero-order release kinetics and follow case-II transport when it applied to the Korsmeyer-Peppas model for the mechanism of drug release. The stability of the F2, F4 & F5 formulations were studied at 5±3^{0}C and at room temperature for duration of 3 months. Hence it can be concluded that the liposomes along with Hydrogenated soy phosphatidylcholine, DSPG-Na and Cholesterol are suitable carriers for the preparation of Azacitidine liposomes. The stability of the Azacitidine Liposomes was evaluated after storage at 5±30C and room temperature for 3months. The assays of the samples were determined as a function of the storage time. The Liposomes stored at 5±30C were found to be stable for duration of 3months. The results were showed from the executed experimental results, it could be concluded that the lipids Hydrogenated soy phosphatidylcholine, 1,2-Distearoyl-sn-glycero-3[Phospho-rac-(1-glycerol..) [DSPG-Na] and cholesterol were suitable carrier for the preparation of Azacitidine liposomes. Though the preliminary data based on in-vitro dissolution profile, release kinetics and stability studies proved that the suitability of such formulations, Still a thorough experiment will be required based on the animal studies.

Biography

Sreedhar Bandari has completed his M. Pharmacy from University College of pharmaceutical sciences, Kakatiya University, Warangal. A.P, India. He is doing Ph.D. in the area of "Pharmaceutical development of parenteral lyophilized dosage form" in centre for pharmaceutical sciences, Jawaharlal Nehru Technological University, Hyderabad, India. He has published 4 papers in reputed journals and also presented 3 papers in various national and international conferences. He is Member of IPA. He has 10 years research experience in the field of development of lyophilized dosage forms of various cancer drugs.

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