عنوان مقاله:

Preparation and evaluation of vitamin A nanosuspension as a novel ocular drug delivery

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خلاصه مقاله:

Objective(s): The aim of this study was to prepare a nanosuspension formulation as a new vehicle for the improvement of the ocular delivery of vitamin A. Material and Methods: Formulations were designed based on full factorial design. A high pressure homogenization technique was used to produce nanosuspensions. Fifteen formulations were prepared by the use of different combinations of surfactants Tween 80, benzalkonium chloride and Pluronic and evaluated for pH, particle size, entrapment efficiency, differential scanning calorimetry (DSC), stability and drug release. Also, Draize test was used to evaluate the irritation of rabbit eye by formulations. Results: All formulations showed a small mean size that is well suited for ocular application. Also it was observed that the particle size decreased with increase in the amount of surfactant. Drug entrapment increased with increasing amount of surfactant. It was shown that initial and final drug release can be controlled by the ratio and the total amount of surfactants, respectively. Conclusion: It was concluded that the use of Tween 80 and Pluronic in the formualtions with a proper ratio does not show eye irritation and could be useful to achieve a suitable nanosuspension of vitamin A as a novel ocular delivery system.

کلمات کلیدی:

Benzalkonium, Nanosuspension, Pluronic, Tween, Vitamin A

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