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Microsponge topical delivery system for Minoxidil sulphate

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Minoxidil in its sulphated form was believed to enhance hair growth in a remarkable way rather than the base alone. Minoxidil sulphate is one of several chemically unrelated drugs which cause opening of plasma membrane adenosine triphosphate (ATP)-sensitive potassium channels (K-ATP channels), and its relaxant effect on vascular smooth muscle (antihypertensive effect) is mediated through this mechanism. Human dermal papillae was believed to have k channel mediated receptor similar to those in smooth muscle, hence the action of minoxidil could be explained. In order to control the release of minoxidil sulphate after its topical application microsponge delivery system could be used. The Microsponge Delivery System is a unique technology for the controlled release of topical agents and it consists of porous polymeric microspheres, typically 10 - 50 µm in diameter, loaded with active agent. When applied to the skin, the microsponge releases its active ingredient on a time mode and also in response to other stimuli namely; rubbing, temperature and pH.

Microsponge delivery system could lead to beneficial results, as they control the passage of the drug through the stratum corneum and epidermis, preventing its passage to the dermis where lye several blood vessels. Preventing minoxidil sulphate from reaching blood vessel prevents its antihypertensive effect. From the above, microsponge allow topical delivery of minoxidil sulphate without frequency of dosing and unwanted side effect.

Biography

I have published five research papers, which they are as follow:

1.Cefepime compatibility. Canadian journal of hospital pharmacy, Nov 2007,vol 60, N.5,338-9.

2.Cefepime Stability in I.V solution and admixtures. Canadian journal of hospital pharmacy, sep2008, vol 61, N 5,356.

3. The physical, chemical and therapeutic incompatibilities of admixtures of IV cefradine with selected drugs. Hospital pharmacist, 2008,15:339-45.

4. In Vitro and In Vivo Evaluation of Hydroxyzine Hydrochloride Microsponges for Topical Delivery .AAPS PharmSciTech (2011) 12: 989-1001.

5. "Microencapsulation of Hydroxyzine HCl by thermal phase separation: in vitro release enhancement and in vivo pharmacodynamic evaluation."Pharmaceutical Development and Technology, early online 1-14.

I presented posters in two international conferences:

1. In the 13th conference for the pan Arabian conference for the college of pharmacy of the assembly of the arab universities (AARU) 2010, MUST university, 6 October, Egypt.

2. In the second RNAi Research and Therapeutics conferences, San Francisco, 7-8 July 2011.

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