[PE1-8] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Development and evaluation of transdermal delivery system containing clenbuterol

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The purpose of this study is to develop and evaluate matrix-type transdermal patch containing clenbuterol. Clenbuterol is a drug which has been used for the treatment of bronchial asthma and chronic obstructive bronchial disease. To develop clenbuterol patch, various adhesives and permeation enhancers were tested for an optimal delivery system. Skin permeation rates of clenbuterol from patches were evaluated using hairless mouse skin and flow-through diffusion cell. Skin permeation rate was found to be dependent on loading dose of the drug in the matrix. Effective skin permeation rate across the hairless mouse skin was obtained from a patch with 1.0 mm thickness and 15% w/w loading dose. Labrafil, Tween 65 and lauryl pyrrolidone were found to produce an effective skin permeation rate of clenbuterol. They enhanced the permeability of clenbuterol depending on concentration in the range from 0% up to 5%. The skin permeation rate of clenbuterol from polyacrylate-based adhesive patch was higher than those from PIB-based adhesive patch. The in vivo percutaneous absorption study using hairless rats showed that the plasma concentration of optimal formulation was high enough to be in the therapeutic concentration range. This study demonstrated a good feasibility of clenbuterol administration through the intact skin using a transdermal patch.

[PE1-9] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Effect of Vehicles and Enhancers on the Permeation of Ondansetron Hydrochloride through Excised Hairless Mouse Skin

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To develop a transdermal patch of ondansetron hydrochloride (OS), which has been used to prevent nausea and vomiting in emetogenic cancer chemotherapy, the effect of various vehicles and enhancers in solution formulations was evaluated. The permeation study was carried out using a side-by-side permeation system at 32℃. The amount of OS permeated and the solubility of OS were determined by HPLC. The solubility of OS at 32℃ was increased in the rank order of isopropyl myristate (IPM) < propylene glycol laurate (PGL) < propylene glycol monolaurate (PGML) < propylene glycol monocaprylate (PGMC) < diethylene glycol monoethyl ether (DGME) < polyethylene glycol 300 < water (35 ㎎/㎖). Vehicles such as PGMC, DGME, PGL, IPM, ethanol, and water showed different permeation fluxes of OS from their saturated solutions at 1.7±0.8, 3.7±0.07, 0.4±0.11, 0.2±0.1, 45.8±37.9, and 33.8±27.8 ㎍/㎠/hr, respectively. The addition of DGME to PGMC increased the solubility of OS, and the permeation rate of OS from saturated solutions was markedly increased until the ratio of DGME in the binary mixture reached 60%. In a binary vehicle of PGMC/DGME (6:4, v/v), however, penetration enhancers such as linoleic acid, oleic acid, lauric acid, caprylic acid, capric acid, lauryl alcohol or oleyl alcohol were shown not to significantly promote the flux of OS, when compared with the control (10.2±5.1 ㎍/㎠/hr).

[PE1-10] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Development of Terfenadine-Pseudoephedrine Double layered Tablet