

Abstract

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Title of thesis: In vitro models of skin barrier

The aim of this work is to summarize information about various types of skin models which are used for testing of permeability, toxicity, irritability and other aspects of drugs, through professional, verified and reviewed literature. These characteristics are necessary to know in order to grant optimal safety, effectiveness and quality of transdermally administered drugs.

Transdermal administration of drugs has got lots of benefits in contrast with classic peroral administration. An administration of drugs through this way is quite simple and it can be interrupted quite easily. We can also easily change a place of administration in which a drug is released and the risk of overdosing is very low. Furthermore, transdermal administration makes possible to maintain constant plasmatic concentration of drug in a blood stream and also to prolong the duration of effect of drugs with small halftime thanks to constant releasing of drug. And primarily, transdermally administered drug normally avoids the „*first-pass*“ effect of liver, so the dose of drug can be lowered. The risk of drug interactions and their adverse effects is also lowered and a patient usually has a good compliance (he/she can simply figure if he did not forget to use his/her drug). Last but not least, transdermal administration is a suitable drug form for unconscious patients, patients with swallowing problems and older patients.

This type of drug administration is tested on various skin models, whose manufacturers tend to make the most authentic composition like the human skin has, in order to have a good extrapolation of data gained from experiments and tests of drugs, to human skin. To facilitate the permeation of drugs, various substances accelerating and facilitating the drug permeation are used. The assortment of these models is very wide and it features various skin models from the most simple ones (synthetic skin models, animal skin models...) to the complex ones

which should mimic the human skin as much as possible (bioengineered skin models, human epidermis models).

This work summarizes the problematics of skin models. At the end of this work there are tables which compare the results of searching in a bibliographic database PubMed, citation database Web of Science and citation database Scopus. There are numbers of articles found in these databases by keywords which can be also seen in tables.