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Transdermal iron replenishment therapy

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Abstract

Iron deficiency anemia is one of the most prevalent and serious health issues all over the world. Replenishment of body iron stores via oral and parenteral iron therapy has been in practice since several decades. However, oral iron therapy is associated with severe gastric side effects particularly in pregnant women and children. The patient adherence to oral iron therapy is poor due to unpleasant taste and odor of iron salts. Parenteral iron therapy is recommended only in severe anemic conditions due to its invasiveness and systemic side effects due to colloidal nature of the parenteral iron products. Transcutaneous delivery of iron is likely to overcome the limitations of conventional iron replenishment methods. However, stratum corneum barrier does not allow the hydrophilic iron salts or colloidal iron products to penetrate into skin. Therefore, several chemical and biophysical approaches of delivering iron have been investigated to enhance the delivery or iron compounds via skin. This presentation would cover the principle of transdermal iron replenishment therapy, chemical enhancers which could potentially lead to enhanced delivery iron into skin and biophysical approaches such as iontophoresis, electroporation and microneedles for transdermal iron delivery.

Biography

Dr. S. Narasimha Murthy completed his Ph.D from Bangalore University, India and Postdoctoral training from Roswell Park Cancer Institute, Buffalo, NY. He is currently working as Associate Professor at the University of Mississippi, University, MS. He is the founder of "Institute for Drug Delivery and Biomedical Research" in India (www.idbresearch.org). Dr.Murthy's research interests are transdermal, trans-ungual and intranasal drug delivery. Dr. Murthy has over seventy-five publications, one hundred scientific presentations, two books and and twelve book chapters to his credit (http://www.olemiss.edu/~murthy). He is serving on the Editorial board of several journals. Dr. Murthy is the recipient of several honors, awards and research grants.