Vitiligo is a destructive disease; both medically and psychosocially. A mainstay of its pathophysiology lies in the destruction of one’s melanocytes via complex immune mediated mechanisms. As dermatologists, we hope that we are able to help our vitiligo patients repigment the patches that are affected and a positive outcome, however, in some cases, this is not always possible. This then becomes a situation when a particular patient can actually be offered depigmentation therapy with chemical medications that are melanocytotoxic, and therefore instead of trying to “revive” the affected melanocytes, you are instead “destroying” residual melanocytes to ultimately help achieve uniform appearance of the affected patients’ skin. In addition to situations where a patient desires depigmentation therapy, there are circumstances under which certain chemicals induce a chemical vitiligo/leukoderma, which in itself can have untoward consequences.

**Depigmentation therapy:**
- The most common drug used is MBEH (Monobenzyl ether of hydroquinone)
- Available in a variety of concentrations
  - 20%, 40%, and can be compounded in other percentages
- Should be initially applied to a small body surface area
  - Recommend the forearm
  - Small nickel sized area, twice daily, morning and evening, but NOT bedtime
- Can commonly cause irritant contact dermatitis
- Once patient tolerating in the application spot area, the MBEH can be applied to larger surface areas
- Patient needs extensive counseling to have lifelong photo-protection, including wide brimmed hats, broad spectrum sunscreen
- Hair may potentially depigment, but important to let patients know that eyes will not
- Paradoxical repigmentation has been seen
  - Can be treated with stronger concentration of MBEH, Liquid nitrogen therapy, Microdermabrasion, and peels
- Very important to try and assess the psychological status of the patient
  - Many vitiligo patients have underlying depression from their disease, and often times a full evening of their skin tone via depigmentation can be beneficial
  - Must be stressed that counseling and appropriate patient selection for depigmentation is of paramount importance

**Chemicals possibly implicated in vitiligo development:**
- Hair Dyes
- Resin products as well as some adhesives
- Rhododrenol
  - Many thousands of reported cases of Rhodendrol-induced vitiligo
  - Reported in Japanese literature in 2016, but episodes of rapid vitiligo started as early as 2009
  - Rhododrenol is also a phenolic compound similar to other hypo/depigmenting agents
  - Some patients did convert to vitiligo vulgaris even when medication was stopped, however majority had resolution once the RD was discontinued
  - In Japan, RD containing cosmetics were recalled since 2013, the majority of which contained 2% Rhododrenol
  - This is not a Japan only issue as over the counter products in many Asian and African countries have been found to contain other phenolic like compounds/derivatives similar to those on this list
  - Therefore, important to discuss patient’s travel history, and what, if any, topical products the patient is using for their skin
- Detergents and leather preservatives
  - Even certain other drugs that we often use in dermatology like imiquimod, chemotherapeutic agents and interferon
- Of note, some studies have shown that retinoic acid can actually synergize with MBEH to enhance its depigmenting effects in some animal studies

**References**
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