Potassium Permanganate

Uses and benefits in dermatology

How does it work?

Potassium Permanganate is an effective anti-bacterial oxidant and an astringent with strong anti-inflammatory and anti-itching properties. Its main benefit is that it is very mild on the skin, making it a better choice versus other disinfectants. In contrast, commonly prescribed treatments such as hydrogen peroxide, chlorine, and all its derivatives are unnecessarily irritating for the skin and wounds, potentially exacerbating the problem its use was intending to resolve.

Safety of use: Is Potassium Permanganate a poison?

Many pharmacists believe that PP is a poisonous substance, probably because the crystals are sold in capsules or tablet form and pharmaceuticals sold as such are typically ingested. To avoid the ingestion of concentrated PP, there are severe warning labels on the packages that made people believe that PP is lethal. While PP is a chemical reagent that should not be ingested, when used as a topical disinfectant, in diluted form, PP can be considered “natural” as it is composed of potassium(P) and manganese(Mn), two natural elements that we can find in food. On the other hand, commonly prescribed disinfectants such as chlorhexidine, iodine povidone or chlorinates are deemed safe, causing speculative confusion amongst earnest observers due to their known toxic potential and counterproductive effects.

When to use PP?

Disinfectants are used on wounds, ulcers, bedsores and dermatitis. In all these cases, PP is the best choice due to its anti-inflammatory, astringent and anti-septic properties. On wounds, it should be used as a compress and applied on the wound for a specific time, often directed by the dermatologist. For dermatitis, we will explain in the following sections how and when to use it and how to prepare the disinfectant solution.

Where to get it and how to prepare the solution.

Depending on where you live, a pharmacist can prepare the solution for you or give you the crystals in the form of powder, capsules or tablets. Sometimes, a prescription is needed from your doctor. The important thing is the ratio of crystals to water. Whatever form of PP you acquire, the pharmacist needs to weigh the crystals into a dose of 125 mg (milligrams) for every liter of water. Tablets and capsules are usually found in dosages of 125 mg; if not, adjust the water accordingly to maintain the same ratio. In cases where you find bulk loose crystals, a pharmacist can weigh a dosage of 125 mg for you.

How to prepare the solution (1 liter water / 125mg PP crystals):

- Bring one liter of water to a boil in a pot that will be used in the future solely for this purpose (some discoloration of the pot will happen).
- Once the water is boiling add the 125 mg of PP crystal and turn off the fire. In cases of tablets or loose crystals weighed and prepared by the pharmacist, put the tablet or the crystals into the water and stir until dissolved. In capsules, open the capsule and pour the contents into the water and stir until dissolved. Loose crystals will leave no residue after diluted into the water, however, in the case of the capsules or tablets, a substance called kaolin will deposit at the bottom of the pot. Kaolin is used to keep the crystals together in many pharmaceutical preparations and will not affect the solution.
- Once the solution has cooled down, it can be poured into containers. Light and air will oxidize the PP solution, so it's better to use dark-colored glass bottles with a tight cap.
- Apply a label on the bottle such as "Disinfectant, do not drink" and it will last for about a month or more if properly stored.
- Due to its vibrant purple color, some staining could occur, especially on clothes or equipment.
- Once exposed to air and light, PP will turn brown, indicating that is time to prepare a new solution due to reduced effectiveness after oxidation.

The use of PP for Dermatitis

For dermatitis, PP is used mainly as a cleanser to substitute the common washing routine with water and harsh detergents which are known to worsen all types of dermatitis. This type of PP cleansing routine is known as a “dry bath”, with the intent being to wet the skin as little as possible because water is a known enemy of dermatitis.

Cleansing routine with Potassium Permanganate

Once the solution is prepared by carefully following the aforementioned instructions, it can be used to clean the entire body, in a safe manner, and for all forms of dermatitis or other skin ailments. As mentioned, the use of harsh chemicals in soap, and water itself, will take a toll on damaged skin, thus it is preferable to use mild products and the least amount of water. The solution can be poured onto a soft, clean cotton-cloth the size of a hand towel and squeezed until no more drops come out of the fabric. With the damp cloth, gently rub or pat your skin, head to toe, to clean and disinfect at the same time. The same system can be used on the scalp to avoid the use of shampoo and excessive water. It is safe to use on any part of the body and face, especially for patients with dermatitis on the face and eyelids, or facial rosacea.

Atopic Dermatitis

Atopic Dermatitis is characterized by a negative sensitivity to water and detergents. In fact, patients suffering from AD have a skin-barrier defect resulting in very dry and irritable skin. Frequent washing results in inflamed skin and increase itching. The use of Potassium Permanganate for “dry baths’ will ensure cleansing, whilst itching and inflammation will decrease.

Eczema, Pruritic Dermatitis, Burns, Ulcers, Bedsores

Potassium Permanganate is the preferred disinfectant for all type of eczema and pruritic dermatitis due to its anti-inflammatory and anti-pruritus properties; whereas, with other disinfectants, frequent washing with harsh chemicals will make these conditions worse.

In cases of burns, the disinfectant action works along with its astringent properties that will reduce pain; whereas, other disinfectants will increase it.

For ulcers, wounds, or bedsores, it is best to use PP with every change of dressings to clean and disinfect the wounds. Being an effective disinfectant yet still mild on the skin, it doesn't burn or dry out the sore, allowing for a proper healing.

Conclusion

Potassium Permanganate solution is an irreplaceable disinfectant, with added anti-itching and astringent properties, for various skin ailments and considered an integral part of dermatologic treatment.