Silver Sulfadiazine (Silvadene) and Mafenide Acetate (Sulfamylon)

Silver sulfadiazine (Silvadene) and mafenide acetate (Sulfamylon) are sulfonamides that disrupt the synthesis of folic acid necessary for DNA, RNA, and protein synthesis. This action makes the sulfonamides broad-spectrum antimicrobials. These medications are indicated for burns and open wound care. Side effects of mafenide acetate include pain and acidosis. Prior to performing wound care, analgesics should be administered to decrease pain.

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Mechanism

Topical Antimicrobial
Topical Ant-tie-microbes
Silver sulfadiazine and mafenide acetate are topical antimicrobials used to decrease bacteria such as Pseudomonas aeruginosa. Silver sulfadiazine releases free silver to suppress bacterial colonization and decrease antimicrobial counts. Mafenide acetate acts as a sulfonamide and disrupts bacterial DNA synthesis by interrupting folic acid synthesis. Since mammalian cells use preformed folic acid obtained by diet, the drug does not harm mammalian DNA and protein synthesis.

Indications

Burns
Burns
Silver sulfadiazine and mafenide acetate are indicated to decrease bacterial colonization in patients with second- and third-degree burns. The medications may help prevent the progression of second-degree (partial-thickness) wounds into third-degree (full-thickness) wounds. Silver sulfadiazine softens eschar and helps with the removal of dead tissue for grafting. Unlike mafenide, it does not have significant side effects.

Open Wound Care
Open Wound
Silver sulfadiazine and mafenide acetate are used to decrease infection in open wounds. The wounds may be caused by herpes blisters or open second- and third-degree burns. Assess the condition of the skin surrounding the wound for skin breakdown caused by maceration of tissue.

Side Effects

Mafenide
Muffin-knight
Mafenide is a carbonic anhydrase inhibitor. Although the mechanism of action is not fully understood, it is thought that Mafenide modifies the expression of folate receptors. This medication may cause pain and acidosis.

Pain
Pain-bolt
Topical application of silver sulfadiazine does not cause pain. Mafenide, however, may cause pain upon application, especially in partial thickness burns. Administer analgesics prior to wound care, especially during the application of mafenide to minimize pain.

Acidosis
Acidic-lemon
Unlike silver sulfadiazine, mafenide causes acidosis by metabolizing into a chemical that decreases the kidneys' ability to excrete acids. While taking mafenide, the patient should be frequently monitored for acid-base status. The drug should be temporarily discontinued for 1-2 days if the patient experiences severe acidosis.

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Considerations

Administer Analgesic Prior to Wound Care

A-nail-Jay-Z

Since mafenide causes pain, administering analgesics prior to wound care will help provide pain relief. A decreased level of pain will increase the patient's tolerance for wound care performed.

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