

ABOUT CHLORHEXIDINE

Chlorhexidine (klor-HEX-i-deen)

Also known as: **Chlorhexidine Digluconate; Chlorhexidine Gluconate (CHG)**

Kills bacteria on your skin. It is used as a wound cleanser and general skin cleanser after an injury, before surgery, or before an injection. It is also used to clean the hands before a procedure. This is an antiseptic antibacterial agent.

The active substance, chlorhexidine, is a synthetic chemical compound that exhibits a bactericidal effect through interaction with the bacteria's cell membrane. The antimicrobial effect of chlorhexidine was discovered in 1950, testing the substance started on orthopaedic patients during the 1960s, and it has been used systematically as a skin disinfectant since the end of the 1970s.

GENERAL POINTS

- The antimicrobial activity of chlorhexidine is PH dependent. The optimal range is between 5.5 and 7.0 which correspond to the pH of the body surfaces and tissues.
- Certain dyes may be added in low concentrations to colour the chlorhexidine to identify the solutions and colour skin. When used at a higher concentration they may form a precipitate
- Chlorhexidine is absorbed onto the fibres, particularly cotton. Brown stains will appear when washing clothes with a bleaching agent that contains hypochlorite.
- Chlorhexidine is bacteriostatic at low concentrations but rapidly becomes bactericidal in higher concentrations, the actual levels varying somewhat from species to species.

SKIN DISINFECTION

- Chlorhexidine in alcohol may be used for preoperative surgeons' and nurses' hands and forearms antiseptics. It may also be used for the final preparation of patients' skin prior to a surgery.
- Various properties have to be taken into account when looking at the effectiveness of an antiseptic agent:
 - Immediate bactericidal action on the resident and transitory flora
 - The persistence of action to prevent re-colonisation by micro-organisms
 - Cumulative effect that results from regular use

SURGICAL HAND DISINFECTION

- The objective is to render the skin free from bacteria, thus preventing the escape of organisms into the operative wound during surgery in the event that surgical gloves are punctured.
- Washing hands for 2 minutes in 4% chlorhexidine reduces flora on the skin by 86% and the effect is maintained for many hours.
- Povidone Iodine was found to be less effective than chlorhexidine and to allow the numbers of survivors on the hands to increase dramatically during the operation.

HYGIENIC HAND DISINFECTION

- The aim is to eliminate transitory organisms accumulated on the skin to prevent transfer between patients.
- Rates of infection using chlorhexidine detergents or povidone are lower than with unmedicated soap
- Chlorhexidine detergent was the best-tolerated detergent for frequent use

UROLOGY

- The effectiveness of chlorhexidine in the prevention of infections of the urinary tract has been demonstrated on several occasions.
- Combining 0.05 % chlorhexidine in glycerine and ethylene glycol also acts as an effective antiseptic and lubricant

OBSTETRICS AND GYNAECOLOGY

- Only chlorhexidine in its recommended concentration of 1 % has completely eliminated organisms.

ORAL DISEASE

- Effective for the reduction of microbial colonisation of the mouth for several hours
- Effective in promoting post-operative healing of the gums

SAFETY IN USE

- Acute effects of accidental injection or ingestion are associated only with high doses.
- Absorption from the alimentary tract or through the skin is negligible or absent.
- As with most disinfectants, a high probability of total deafness rules out the use of chlorhexidine during surgery on the inner and middle ear.
- Chlorhexidine is toxic to nervous tissues. Contact with the brain and meninges should be avoided

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