

# CHLORHEXIDINE GLUCONATE

DENTON, G. W. (1991). "Chlorhexidine", *Disinfection, Sterilization and Preservation*, chapter 16, p. 274-289.

## 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 antisepsis. 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 proviodine 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 0.05 % (1/2000) 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.