HAND WASHING PROTOCOL 2
Frequency of Irritant Contact Dermatitis or allergic dermatitis by hand hygiene measures in health care workers

Key Concepts
- Detergents and hand hygiene.
- Alcohol based Products.
- Adverse effects of hand hygiene products.
- Prevention of Adverse effects.

Abstract
The adverse effects hand hygiene products are damage the skin by denaturation of protein, contact dermatitis and allergic reactions. Multiple measure can be adopted to prevent these side effects such as by reducing frequency of exposure, Replacement by less irritant chemicals, frequent use of non-antimicrobial agents, increase use of alcohol based products. The use of hand lotions and emollients is encouraged to. To put expenditure for hand hygiene products it is necessary to compare the cost required for hand hygiene with estimated cost required to treat infection.

Detergents containing hand hygiene products damage the skin by denaturation of protein in stratum corneum as well as making holes in lipid contents of skin epithelium. The main factor resulting in chronic irritant contact dermatitis in health care workers is frequent and repeated hand washing with soaps and detergents used to disinfect the hands (250). It was estimated that 85% health care workers and 25% nurses complaint for developed sign and symptoms of dermatitis on their hands after frequent use of soap and other detergents as hand hygiene products. Among all additives in hand hygiene products, alcohols are among the safest antiseptics available, they may cause dryness and irritation of the skin. Among alcohol, Ethanol is usually less irritating than n-Propanol or Isopropanol. The other antiseptic additives that may cause Iritant contact dermatitis are iodophors, Chlorhexidine, PCMX, and Triclosan. Skin that is damaged by repeated exposure to...
detergents may be more susceptible to irritation by alcohol based preparations. Other factors which are also causing dermatitis are frequent hand washing with hot water, reduced environmental humidity in months of winter, not using supplementary emollients and hand lotion or cream, and cleansing of hands with paper towels of poor quality.

Skin irritation caused by detergents can be reduced by adding emollients and humectants. Irritation of skin also caused by soaps containing anti microbial agents. Persons with contact dermatitis and allergic dermatitis complaint for feeling of dryness and or burning on skin and such area shows roughness, erythema, scaling or fissures. Destruction of epithelium of skin by detergents and antimicrobial agents resulting in change of skin flora that leads over growth and colonization of Staphylococci and Gram-negative bacilli.

Ingredients in hand hygiene products when applied on skin may cause delayed type reactions and some time immediate type reactions. The most common ingredients those causing immediate or delayed type reactions are fragrances and preservatives, while emulsifier are less commonly causing such types of reactions.

Liquid soaps, hand lotions or creams, and “udder ointments” may contain ingredients that cause contact allergies among HCWs.

Alcohol containing hand rubs are uncommon cause of allergic contact dermatitis. True allergic reaction may sometime caused occurs by increased use of alcohol based products in health care workers. This allergic reaction may be caused by alcohol (Ethanol or Isopropanol), impurity, and Aldehyde metabolites or by any other constituents (fragrances, benzyl alcohol, stearyl or isostearyl alcohol, phenoxyethanol, myristyl alcohol, propylene glycol, parabens, and benzalkonium chloride) of the product.

HOW THESE ADVERSE ALLERGIC REACTIONS CAN PREVENTED
Contact allergic or contact dermatitis can prevent by
1) Reduced the frequency of exposure to irritating agents’ especially anionic detergents.
2) Replaced the strong irritant additives by less irritant substances, those result in less damage of skin.
3) Awareness about the risk of irritant contact dermatitis against various irritating substances in hand wash product. Educate the use of preventive measures like use of moisturizing skin care products or use of emollients.
4) Frequent use of non-antimicrobial soaps may cause greater skin damage, dryness, and irritation than preparations containing antiseptic additives.
5) Use of alcohol-based hand rubs containing various emollients. Use of these products better tolerated than washing hands with soaps either not contain or contain antimicrobial.
6) There is great risk of development of dermatitis in health care workers who wash their hands with soap following use of alcohol hand rub.
Normal skin contain lipids, repeated use of hand lotion and creams contain humectants, fats and oils increase the hydration of skin and often replace or altered skin lipids that resulting in disturbance in barrier function of skin. Therefore, it is not always recom-mended the frequent use of lubricate products after use of an alcohol hand rub. It is recommended that use of lubricate products twice a day prevent and treat contact dermatitis in health care workers.

Acceptances of hand wash products by health care workers.

1) Soap products usually not well accepted by Health Care Workers. Foaming and lathering of soap preferable by certain HCWs, who may wash their hands as many as 30 times per shift, but the tendency of products to cause skin irritation and dryness is a substantial factor that influences acceptance.

2) Soap or alcohol-based hand rub can affect acceptance by certain HCWs because of its smell, consistency and color. Drying effects of alcohol is a basic cause of low acceptance of alcohol-based hand-hygiene products.

3) Alcohol-based hand rubs those contain emollients are usually acceptable to HCWs.

4) Time that required for drying alcohol-based products, may affect user acceptance.

5) In hospital practice availability of one sink in ward for several patients, location of sink that is far away from the door of the room, may discourage hand washing by some personnel.

6) In intensive-care units, bed side equipments like ventilators or intravenous infusion pumps may block the access to sink.

To put expenditures for hand-hygiene products it is necessary to compare the cost required for hand hygiene with estimated cost required to treat the infection in a health-care facility. The cost on providing good hand hygiene to all health care workers per anum is much more less than the cost that was used to treat the hospital acquired infection.

References


