Antibacterial Soaps

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SUMMARY

The earliest recorded evidence of the production of soap like material dates back to around 2800BC Antibacterial soaps are usually the first line of treatment for rashes in Nigeria) as they are advertised to be preventive and curative for virtually every skin problem.

This article highlights the different types of cleansers, the possible side effects and the indications for antibacterial soaps. With an increase in demand for endorsement for soaps from medical professional bodies and associations there is an opportunity for such societies to insist that the advertisement for such soaps or creams stick to the indications for which they have been tested for.

INTRODUCTION

THE earliest recorded evidence of the production of soap like material dates back to around 2800BC[1]. Before then, cleansing of the skin was done by scrapping the skin; later on, agents such as ashes, oils and herbal extracts were used. Soap was the main cleansing agent for the skin till a few years back when the use of syndet bars (synthetic detergents) and combars became popular in the more affluent society[2,3]. These newer agents have less irritating effects especially in people with sensitive skin and those with dermatological disorders such as atopic dermatitis, acne, ageing and those on drugs with photosensitizing potentials. Some of the newer cleansing agents have a PH which is acidic and therefore similar to the protective acid mantle on the skin[4,5]. They cause minimal or no irritation at all. Skin cleansing is also used for relaxation and improving the overall appearance of the skin.

Although soaps generally have an alkaline PH and tend to be more irritating especially to the sensitive skin, they remain the commonest form of skin cleansers. Medicated soaps form a major bulk of soaps and can be defined as soaps with added contents to cause improved physiological properties or physical appearance of the skin. Available medicated soaps include antibacterial or deodorants soaps (antiseptic, germicidal), antifungal, anti-mosquito, anti-acne, anti-ageing, anti-cellulite, scabicidal, anti-pruritic and exfoliating. Others are moisturizing and anti-chlorine types of soaps.

Antibacterial soaps are usually the first line of treatment for rashes in our environment (Nigeria) as they are advertised to be preventive and curative for virtually every skin problem. A common question in the dermatology clinic is "What kind of soap should I use?" There is a lot of demand for flawless skin and people believe that the kind of soap that is used not only meets the hygienic need of an individual but also improves its general appearance i.e. colour and texture. There has always been a great demand for antibacterial soaps in this environment even before they were endorsed by medical societies. Soaps are cheaper on the average than the newer cleansers and will remain in demand for a long time

This article highlights the different types of cleansers and the uses antibacterial soaps.

SKIN CLEANSERS

Skin cleansers emulsify sebum, environmental impurities and cosmetic products which are generally not water soluble. Cleansers emulsify them into finer particles which are fat soluble and can be easily washed of the skin. Cleansers contain surfactants which move to the interface upon dissolving in water and act by lowering the interfacial tension. Surfactants can be anionic or cationic and amphoteric (having both charges). The type and amount of surfactant on a

cleanser determines its drying or irritating potential[6]. Soap which is the commonest type of cleanser contains an anionic surfactant.

Cleansers can be classified into 3 basic groups; soaps, syndet and combars.

SYNDETS (SYNTHETIC DETERGENTS)

They were produced in the 1950s. They are produced from petrochemicals and or oleochemicals (fats and oils). They have a non-soap synthetic surfactant. They have the advantage over soap in that they usually have the normal skin pH of 5.5 and are less irritating to the skin. No scum is produced while washing so it rinses off well and they also reduce the amount of proprionibacterium on the skin[1,2]. The relatively high free fatty acid content of synthetic detergent bars provides a moisturizing benefit that help to maintain skin hydration. They are however more expensive than soap.

Soap was the main cleansing agent for the skin till a few years back when the use of syndet bars and combars became popular in the more affluent society. These newer agents have less irritating effects especially in people with sensitive skin and those with dermatological disorders

COMBARS

Combars are milder cleansers than true soaps, but induce more thorough cleansing than synthetic detergents. They are composed of an alkaline soap to which surface active agents with a pH of 9-10 have been added [3].

SOAPS

They are the oldest type of cleansing agents. They are anionic surfactants containing long chain fatty acids and alkali salts with a pH of 9-10. Soap is made from fats and oils mixed with alkalis [7, 8]. There are different types of soaps available in the market. They exist both as liquid washes and tablets. They include glycerine bars, superfatted and antibacterial soaps. Glycerine bars are usually transparent and contain glycerine which act as a humectant and prevents drying of the skin. Superfatted soaps contain a great amount of lipid e.g. mineral oil, paraffin, lanolin and triglycerides. They leave a protective oily film on the skin.

Antibacterial soaps appear to be the largest group of the medicated soaps available in the markets. They can be defined as cleansing products to which antibacterial agents have been added. The chemicals kill bacteria and other microbes but are less active in dealing with viruses [9]. They also kill non pathogenic bacteria.

They contain antibacterial agents such as triclosan, triclocarban, trichlorocarbamide, chloroxylenol or herbal preparations with antibacterial properties[10, 11, 12.] Some soap also contains tetrasoduim EDTA which is a chelating agent and competes for the metals that the bacteria need to grow, thereby reducing the population.

Although there is an increasing demand for antibacterial soaps in the general population the benefits of such category of soaps for bathing in normal individuals remain controversial[10-15]. The body has its normal skin flora which repopulates within hours after decreasing with antiseptics. The skin also produces antimicrobial peptides which also help in its defence against bacteria. In an individual with intact immunity and an intact skin associated lymphoid tissue (SALT), the use of antibacterial soaps may not give any added benefit[16]. Reports on studies using antibacterial washes in the intensive care unit and in those with surgical wounds have suggested that may these washes may be useful in reducing infections of catheters and wounds[17, 18].

The use of antibacterial agents in hand washing on the other hand is less controversial and there are many studies supporting its usefulness in reducing infections such as diarrheal diseases and viral infections [19, 18, 20, 21].

A systematic review of 27 reports on the use of soaps containing triclosan within the range of concentrations commonly used in the community settings showed that they were no more effective than plain soap at preventing infectious illness symptoms and in reducing bacterial levels on the hands [14, 22]. Other documented reports are similar in their findings. Several laboratory studies have also demonstrated evidence of triclosan-adapted cross-resistance to antibiotics among different species of bacteria[13-15]. The possible contamination of the environment from use of all these antiseptics in consumer products has also been emphasized. Most of the water from bathing and cleaning go back into the

environment. Further studies are needed to clarify the actual danger if any of these products to the environment.

Antibacterial soaps are bactericidal to microbes and theoretically should be useful in situations of proven bacterial increase such as in acne, chronic dermatitis, some cases of body odour, lymphoedema etc.

The alkaline nature of the soaps causes more irritation to the compromised epidermis in patients with the above named entities.

Health care personnel who attend to individuals with skin conditions should be educated on the possible irritating side effects of these soaps on individuals with these dermatological conditions.

There are reports of the usefulness of antibacterial soaps in some conditions. These include chronic lymphoedema, bacterial infections of the skin in children, and in individuals with body odour, and hidradenitis suppurutiva to mention a few[23, 24, 25]. There are also reports showing that some plant extracts do have antibacterial activities[26]. Further studies should be carried out with the latter as they may be less irritating on the skin.

Presently there are very few reports on the usefulness of antibacterial soaps in Nigeria. It is generally believed or assumed that a developing African country with a tropical clime is laden with dirt and often has a high burden of pollutants which will necessitate the use of antibacterial soaps. The situation in a tropical climate also leads to much sweating encouraging microbial growth.

With an increase in demand for endorsement of skin products from medical professional bodies and associations there is an opportunity for such societies to insist that the advertisement for such soaps or creams stick to the indications for which they have been tested for. Possible side effects from the use of such products should also be listed on the products. There is a need to educate health care worker on the different types of cleansing agents available.

In conclusion antibacterial soaps still remain relevant for certain conditions however most of them have an irritating effect on patients with dermatological conditions and should be avoided in such situations ■

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