Name(s)	Project Number
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Project Title

Determining a Correlation between Surfactant Properties of Antibacterial Soap and Its Bactericidal Action on S. aureus

Abstract

Objectives/Goals

Antibacterial soaps are a combination of a surfactant and a bactericidal agent. The purpose of this experiment was to determine whether there is a correlation between the amount of surface tension reduction of water by antibacterial soaps and its antibacterial action. Better spread of the antibacterial agent should be possible by a better surfactant.

Methods/Materials

The experiment consists of two parts. A) Studying the inhibitory effect of four different soaps on Staph Aureus colonies on blood agar plates B) Studying the surface tension lowering ability of these soaps by measuring the reduction of rise of a water #soap mixture through a fine bore (0.5mm) capillary tube.

Results

Of the four antibacterial soaps studied, there was negligible difference between 3 of the soaps, all three exhibiting comparable bactericidal and surface tension lowering properties. However the fourth soap showed a significantly reduced antibacterial effect and a lower reduction in the surface tension of water.

Conclusions/Discussion

A simple measure of surfactant effect was able to establish the correlation between the antibacterial ability of antibacterial soaps and their detergent property. My experiment elucidated the critical role of the surfactant in soap in improving the bactericidal effect of the active ingredient. In this era of cost containment, widespread use of such inexpensive but effective chemical combinations may play a major role in controlling the spread of disease in the general population.

Summary Statement

The presence of a surfactant enhances the bactericidal action of antibacterial soaps.

Help Received

Used lab equipment at Children's Hospital Central California under the supervision of Mr. Percy Lee. Mr. Garabedian gave me direction. My sister Dipti helped in preparing the board.

Ap2/02