

Research

Effect Of Topical Pomegranate Peel Extract on Methicillin Resistant *Staphylococcus aureus* Bacteria on Second Degree Burn Wound in Rat Strain Wistar (Experimental Study)

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Abstract

Introduction : Pomegranate (*Punica granatum*) has different chemical content associated with antibacterial properties, one of them is ellagic acid ellagitannin. The antibacterial properties of pomegranate have been studied in many bacteria, such as *methicillin resistant Staphylococcus aureus* (MRSA). MRSA is a bacterial pathogen that plays an important role as a nosocomial pathogen and causes outbreaks of nosocomial infections which is become serious problems in the management of burns patients because many strains has changed become multiresistant to several classes of antibiotics. Treatment of MRSA bacterial infection in burns is still a problem because the cost are too high and there is an increasing trend of resistance, so we need to find alternatives to deal with this problem, one of them by using pomegranate peel extract topically. This study aimed to compare the topical administration of pomegranate peel extract with mupirocin and see the effects of combined administration of pomegranate peel extract with mupirocin against bacterial colonization of MRSA on the burn wound rat skin.

Materials and methods : Isolates of MRSA bacteria inoculated on burn wound in male rats strain Wistar. They were divided into three groups, each group was given treatment six hours after bacterial inoculation. The first group was given mupirocin in its burn wound, the second group is given pomegranate peel extract topically, and the third group received a combination mupirocin with pomegranate peel extract topically. Swab culture were taken on the third and fifth day post-treatment. The specimen was sent to the Microbiology Laboratory for microbiological examination to evaluate the efficacy of pomegranate peel extract in inhibiting bacterial colonization of MRSA burn wound.

Results : Topical pomegranate fruit peel extract is significantly inhibit MRSA bacterial colonization in rat burn wound (p sig.(2-tailed), 0,045, $P < 0,05$). There is no significant result in bacterial count if topical pomegranate fruit peel extract administration is compared with topical mupirocin administration only or combination between topical pomegranate and mupirocin.

Conclusion : Topical pomegranate fruit peel extract has antibacterial effect, but it is not more effective than mupirocin administration only or combination between pomegranate and mupirocin.

Keywords : *pomegranate, antibacterial, methicillin resistant Staphylococcus aureus, mupirocin*