Perbandingan Efektivitas Penggunaan Bioceramic dan Kasa Lembab Naci Fisiologis terhadap Jumlah Koloni Kuman dalam Pembalutan Luka Pascadebridemen Patah Tulang Terbuka Kruris Derajat IIIA di Rumah Sakit Hasan Sadikin Bandung

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ABSTRAK

Pendahuluan. Perawatan luka setelah penanganan awal yang adekuat pada patah tulang terbuka memiliki peran yang sangat penting untuk mengontrol infeksi yang terjadi. Walaupun perawatan luka merupakan prosedur yang umum dilakukan pada patah tulang terbuka, tetapi masih ada kontroversi mengenai teknik perawatan luka yang optimal sehingga masih mempunyai resiko terjadinya angka infeksi. Terdapat berbagai usaha untuk mengurangi kejadian infeksi melalui perbaikan teknik perawatan luka atau bahan pembalutan luka yang digunakan. Salah satu metode untuk melakukan perawatan luka patah tulang terbuka adalah dengan *bioceramic*. Penelitian ini bertujuan untuk mengetahui perbandingan efektivitas penggunaan *bioceramic* dibandingkan dengan kasa lembab NaCl fisiologis terhadap jumlah koloni kuman dalam pembalutan luka pasca debridemen luka patah tulang panjang terbuka kruris derajat IIIA.

Bahan dan cara kerja. Desain penelitian ini adalah uji klinis dengan rancang acak sederhana yang membandingkan metode perawatan luka patah tulang terbuka kruris derajat IIIA menggunakan *bioceramic* dibandingkan dengan menggunakan kasa lembab NaCl fisiologis secara berurutan di Instalasi Rawat Darurat RS Dr. Hasan Sadikin sejak Desember 2010 hingga April 2011. Penelitian ini dibagi menjadi dua kelompok. Kelompok pertama mendapatkan perlakuan perawatan luka dengan *bioceramic* (n=13 pasien) dan kelompok kedua dilakukan perawatan luka dengan kasa lembab NaCl fisiologis (n=13 pasien). Bahan pemeriksaan diperoleh dari dasar luka, kemudian dilakukan penghitungan jumlah koloni kuman di Laboratorium Mikrobiologi FK Unpad.

Hasil. Hasil penelitian ini didapat 13 pasien yang menjalani perawatan luka dengan *bioceramic* dengan mean persentase penurunan jumlah koloni kuman setelah 2 hari perawatan adalah 84,3 persen dan setelah 7 hari perawatan adalah 83,4 persen. Pada kelompok yang menjalani perawatan luka dengan kasa lembab NaCl fisiologis, mean persentase penurunan jumlah koloni kuman setelah 2 hari perawatan adalah 78,3 persen dan setelah 7 hari perawatan adalah 75,6 persen. Hasil analisis statistik dengan menggunakan uji statistik parametrik *t–test* menunjukkan perbedaan bermakna pada perlakuan dua kelompok tersebut dengan nilai signifikansi $p<0,01$

Simpulan. Penggunaan *bioceramic* pada perawatan luka pasca debridemen patah tulang panjang terbuka derajat IIIA memberikan hasil yang lebih baik terhadap penurunan jumlah koloni kuman dibandingkan dengan menggunakan kasa lembab NaCl fisiologis.

Kata kunci: bioceramic, kasa lembab NaCl fisiologis, patah tulang terbuka

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Comparison between the Effect of Bioceramic and Physiological Saline Moist Gauze on the Amount of Bacterial Colony in Post-Debridement Wound Dressings of Grade 3A Open Fractures of the Leg in Hasan Sadikin Hospital, Bandung

ABSTRACT

Introduction. In addition to an adequate initial treatment in open fractures, wound care also has a very important role to control infections that occur in the wound. There are various efforts to reduce the incidence of infection through the improvement of wound care techniques or materials used wound dressings. One method to treat an open fracture wounds is a bioceramic. The objective of the study is to determine the comparative effectiveness of using bioceramic compared with physiological saline moist gauze to the number of colonies of bacteria in the wound dressings, after wound debridement on lower leg open fractures grade IIIA.

Materials and methods. The design of this study is to design randomized clinical trials comparing simple method of treatment of lower leg open fracture wounds grade IIIA using bioceramic compared using physiological saline moist gauze in a row at the emergency ward of Dr. Hasan Sadikin Hospital from December 2010 until April 2011. The research was divided into two groups, the first group was given preferential treatment with bioceramic wound care (n = 13 patients) and a second group performed wound care with moist gauze physiological saline (n = 13 patients). Examination of materials obtained from the wound bed, then a head count of the number of bacteria colonies at the Laboratory of Microbiology Faculty of Medicine Universitas Padjadjaran.

Results. The results of treatment of wounds with bioceramic with mean percentage reduction in the number of bacteria colonies was 84.3 after 2 days of treatment and 83.4 after 7 days of treatment. While the group treated the wound with moist gauze physiological saline, the mean percentage reduction in the number of bacteria colonies were 78.3 and 75.6 after 2 and 7 days of treatment respectively. The results of statistical analysis using parametric statistical test t-test showed significant differences value with $p < 0.01$

Conclusions. The use of bioceramic on the treatment of post-debridement wound open long bone fractures grade IIIA will provide better results to the decline in the number of colonies of bacteria.

Key words: bioceramic, open fracture, physiological saline moist gauze

Introduction

Along with the advances of transportation technology, the number of traffic accidents was indirectly affected due to the higher speed and mobility of the traffic users. One of the most prevalent outcomes of a motor vehicle accident is grade 3A open fractures.[1]

Infection prevention, fracture healing, and expedient return of normal and optimal function of the extremities is the main goal of open fracture management. Infection is correlated to delayed unions, non-unions, chronic osteomyelitis, amputations, and even death.[2-3]

Infection of an open fracture is affected by several factors, namely: the contaminating bacteria, the pathology of the tissue around the wound, and general immunity, as well as the proper management consisting of prophylactic antibiotics, wound dilution, debridement, and wound care.[4-5]

Antibiotic alone is not enough to prevent infection, therefore wound dilution, debridement, and wound care after the debridement is a must. Sufficient wound dilution, adequate debridement, and good wound care can reduce the number of bacterial colony after the operation. Gustillo states that the solution to pollution is dilution.[1,6]

Many efforts to reduce the number of infection may be performed, by wound dilution and effective wound dressing using physiological saline with addition of broad spectrum antibiotic solution.[5,7]

There are several factors that may be used as an indicator of success of wound dilution and care, one is by doing a bacterial count. A bacterial count of 10^5 per gram of tissue indicates a probability of infection oc-