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Evaluation of bacteria isolated from wounds before and after gentian violet application in plastic surgery and burn unit patients in a tertiary hospital in Greece

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Objectives: The objective of this study is to evaluate the frequency and the kind of bacteria isolated from wounds after the application of gentian violet stain from patients of the Plastic Surgery Department and Burn Unit (PLSD-BU) in a Greek hospital.

Methods: The study was performed in two semesters, January-June 2013 (study group 1-SG1) and January-June 2014 (study group 2-SG2). Each SG consisted of 20 patients. Criteria for the choice of the patients were the grimy wounds. The aetiology of the wound varied from burn to open wounds, pressure sores and skin grafts. Patients SG1 were receiving conventional treatment; patients SG2, beside conventional treatment, had 1% gentian violet paint locally applied on the wound. Cultures were sent to the laboratory for investigation of bacterial pathogens and their susceptibility to antibiotics which were performed by conventional and automated methods.

Results: The total number of bacterial strains isolated from SG1 was 108 out of which: 71 Gram (-) bacteria (G-B) (66%), 21 coagulase negative staphylococci (CoNS) (19%) and 16 *Staphylococcus aureus* (SA) (15%). The most common G-B isolated was *Acinetobacter baumannii* (AC) (30/71, 42%), followed by *Klebsiella pneumoniae* (KP) (24/71, 34%), *Proteus mirabilis* (PM) (9/71, 13%), *Escherichia coli* (EC) (5/71, 8%), *Enterobacter cloacae* (ECL) (1/71, 1%) and *Pseudomonas aeruginosa* (PA) (1/71, 1%). CoNS resistant to methicillin (MR) were 13/21-62% and MRSA were 10/16-62.5%. Bacterial strains isolated from SG2 were 103 out of which: 74 G-B (72%), 25 CoNS (24%) and 4 SA (4%). The predominant G-B was AC (37/74, 50%), followed by KP (14/74, 19%), PM (11/74, 15%), EC (5/74, 7%), ECL (5/74, 7%) and PA (2/74, 2%). Among CoNS MR were 15/25 (60%) and MRSA 2/4 (50%).

Conclusions: Although no significant difference was observed in the total number of isolated bacteria between the two SG, in SG2 there was a notable decrease of *S. aureus* strains. Worth mentioning, is also, the decrease of *K. pneumoniae* strains as total number and as percentage too. According to these, gentian violet seems to be a good and inexpensive alternative for the management of grimy wounds.

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