

A.D.A.M. test (Antibiofilm Dressing's Activity Measurement) — simple method for evaluating anti-biofilm activity of drug-saturated dressings against wound pathogens.

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In the present article, we propose a simple Antibiofilm Dressing's Activity Measurement (A.D.A.M.) test that allows to check in vitro a dressing's suitability against biofilm-related wound infections. To perform the test, three agar discs are covered with biofilm formed by the tested pathogen after which they are assembled one over another in the form of an agar plug and placed in the well of a 24-well plate. The top disc is covered with the analyzed dressing and the entire set is incubated for 24h. During this time, the investigated antimicrobial substance is released from the dressing and penetrates to subsequent biofilm-covered agar discs. Biofilm reduction is measured using 2,3,5-triphenyl-2H-tetrazolium chloride (TTC) spectrometric assay and the results are compared to untreated control samples (agar plug covered with biofilm and without the dressing/or with a passive dressing placed on the top disc). Furthermore, in order to standardize the differences in penetrability of the drugs released from active dressings the results can be expressed as a dimensionless value referred to as the Penetrability Index. In summary, A.D.A.M. test is simple, cheap, can be performed practically in every clinical laboratory and takes no more time than routine microbiological diagnostics. Apart from measuring the released drug's activity, the A.D.A.M. test allows to assess drug penetrability (across three agar discs), reflecting real wound conditions, where microbes are frequently hidden under the necrotic tissue or cloth. In conclusion, the A.D.A.M. test produces a high volume of data that, when analyzed, can provide a researcher with a valuable hint concerning the applicability of active dressings against specific biofilm pathogens in a particular setting.

Słowa kluczowe

Active dressing, Antiseptics, Biofilm, Octenidine dihydrochloride, PVP-iodine

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