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# Which medical device and/or which local treatment are to be used, as of 2012, in patients with infected pressure sore? Developing French guidelines for clinical practice

Quel dispositif médical et/ou quel médicament local choisir pour un patient porteur d'une escarre infectée en 2012 ? Vers l'élaboration de recommandations françaises pour la pratique clinique

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#### Abstract

Introduction. – Taking care of a patient with an infected pressure sore necessitates a diagnosis allowing for a suitable treatment strategy.

Aims. – To choose the dressings and topical antimicrobial agents that can be used as of 2012 in treatment of an infected pressure sore.

Methods. – A systematic review of the literature with queries to the databases Pascal Biomed, PubMed and Cochrane Library from 2000 through 2010.

Results. – Diagnosis of local infection is essentially clinical. It is subsequently difficult to destroy and/or permeabilize biofilm by means of mechanical wound debridement. Application of an antimicrobial product and a disinfectant solution are of utmost importance in this respect. Discussion. – The studies do not demonstrate that one topical product is better than another in wound cleaning. The papers recommending antimicrobial topics lead to the conclusion that they may be interesting, but show little clinical evidence of their beneficial effects. Dressings including silver, iodine, polyhexamethylene biguanide (PHMB) and negative pressure wound therapy could likewise be of interest, but once again, existing studies present only a low level of evidence (Grade C).

Conclusion. – Local antimicrobial treatment can be used when there are signs of local infection (Grade C). Systemic antibiotic treatment is to be used when there are general medical signs of infection (Grade B).

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Keywords: Pressure sore; Infection; Colonisation; Bacteriology; Germs; Biofilm; Treatment; Dressing; Medical devices; Advices

#### Résumé

Introduction. – La prise en charge d'un patient porteur d'une escarre infectée nécessite un temps diagnostic d'où découle la stratégie thérapeutique.

Objectifs. – Déterminer quels dispositifs locaux en dehors des supports et quels médicaments utiliser pour traiter une escarre infectée en 2012. Méthode. – Revue systématique de la littérature avec interrogation des bases de données Pascal Biomed, PubMed et Cochrane Library entre 2000 et 2010.

Résultats. – Le diagnostic d'infection locale repose essentiellement sur la clinique. La difficulté ensuite est de détruire le biofilm par détersion mécanique pour le rendre perméable et application d'un antibactérien ou d'une solution de nettoyage.

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Discussion. – Les études ne montrent pas de supériorité d'un produit par rapport à un autre pour le nettoyage. L'ensemble des travaux concernant l'application d'antimicrobiens locaux réalisés, permettent de conclure à un intérêt mais sans réelles preuves cliniques d'efficacité. Les pansements à l'argent, les dérivés iodés et la TPN auraient un intérêt mais là encore les études sont d'un faible niveau de preuve (Grade C).

Conclusion. – Le traitement local antibactérien peut être envisagé en présence de signes locaux d'infection (Grade C). Le traitement systémique antibiotique est mis en place en présence de signes généraux d'infection (Grade B).
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Mots clés: Escarre; Infection; Colonisation; Bactériologie; Germes; Biofilm; Traitement; Pansement; Dispositif; Recommandations

#### 1. English version

#### 1.1. Introduction

Pressure sore or pressure ulcer (PU) infection is a multifactorial process involving constant interactions between the host, an immune system, bacteria and the environment.

When an infection is proven to be present, it delays scarring and exposes the patient to a risk of local (example: impairment, pain) or general (example: septicemia) complication. Pressure sore infection has got to be diagnosed and recognized as a pathological state totally differing from the natural colonization of the wound.

Therapeutic strategy consists in adapting controlled wound healing to the local modifications created by the infection. Systemic therapy can be organized in cases where local treatment is insufficient and where the infections state is fully documented in accordance with bacteriological data in conjunction with the patient's overall condition.

#### 1.2. Objective

The objective of this article is to determine in view of the existing literature the local medical devices other than support surfaces to be specifically chosen as of 2012 for treatment of a patient suffering from an infected ulcer pressure sore.

#### 1.3. Material and methods

Drawn up by the Sofmer [35], the method employed involves three main steps: a systematic review of the literature, a compendium of prevailing professional practices, and validation by a multidisciplinary panel of experts.

#### 1.3.1. Systematic review of the literature

1.3.1.1. Study selection. A systematic review of the literature dating from 2000 through 2010 was carried out by two professional documentarians. The English-language keywords were: pressure sore, pressure ulcer, infection, colonization, bacteriology, biofilms, germs, dressing, prevention and control, local wound care, wound healing, therapy, practice guidelines, all devices included topical negative pressure therapy, evidence-based medicine, evidence-based nursing. The French-language keywords were: escarre, infection, colonisation, bactériologie, germes, biofilm, traitement, pansement, dispositif, recommandations.

They were put forward by the medical bibliography selection committee composed of doctors representing PERSE, the SFGG, the SFFPC and the Sofmer. The data bases employed were: Pascal Biomed, PubMed and Cochrane Library. The material chosen for review was limited to articles in English and in French pertaining to adult human subjects and containing an abstract. An initial selection of summarized articles was carried out independently by the same committee in order to pinpoint those relevant to the general theme. The complete articles in an electronic or paper format were then transmitted to two experts. A second selection was subsequently performed by two experts, one from the association known as Prevention Education Research Pressure Sore Care (PERSE) and the other from the French French-speaking wound healing society (SFFPC) with the objective of retaining for further review articles dealing with treatment of pressure sores after having read the "material and methods" paragraphs of the previously selected articles. Lastly, the apparently pertinent abstracts of the articles cited as references in the publications retained were analyzed.

The methodological quality of the articles retained for analysis was established on the basis of the Anaes grid [34] classifying studies according to four levels. Studies particularly lacking in methodological quality (inadequate randomization, insufficient number of subjects, imprecise nature of the intervention) were excluded.

1.3.1.2. Criteria of evaluation. Four types of criteria were implemented with regard to the question of infected ulcer pressure sore: comparative studies, randomized or not, followed by cohort studies; reviews of controlled and case studies:

- criteria of clinical and microbiological diagnostic evidence specific to pressure sores;
- criteria of therapeutic evidence derived from comparative studies, randomized or not:
- criteria of associated comorbidities;
- criteria of a medicoeconomic nature such as length of stay, or analysis of the costs incurred in care management.

1.3.1.3. Data analysis. Data analysis was carried out independently by two "blinded" readers working on behalf of two distinct French associations, PERSE and SFFPC.

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