

Original article

# Cutaneous infections, good use of antibiotics and diagnostic accuracy

## *Infections cutanées, bon usage antibiotique et pertinence diagnostique*

P.M. Roger\*, K. Risso, F. de Salvador, C. Pulcini, V. Mondain, E. Bernard, E. Cua

*Infectiologie, université de Nice-Sophia-Antipolis, hôpital de l'Archet 1, centre hospitalier universitaire de Nice, BP 3079, 06202 Nice, France*

Received 30 September 2011; received in revised form 26 March 2012; accepted 22 July 2012

Available online 6 October 2012

### Abstract

The medical dashboard (DB) recording our clinical practices indicated on one hand the use of two different diagnosis terms, acute dermohypodermatitis (ADH) or cellulitis, and on the other hand, an important antibiotic prescription heterogeneity. Our aim was to define these two diagnosis groups and to document compliance to our antibiotic therapy protocol.

**Method.** – ADH and cellulitis were selected in our medical DB that records all patient data. Our local antibiotic therapy protocol was designed in April 2009; the prescription of recommended antibiotic agents defined the compliance to recommendations. The patient files indicating non-consensual therapy were analyzed to determine the reasons for inappropriate prescription.

**Results.** – Three hundred and four cases of ADH and 82 of cellulitis were diagnosed over 6.5 years. ADH was associated with older age ( $P=0.007$ ), a higher frequency of venous insufficiency ( $P=0.015$ ), a lower frequency of cancer ( $P=0.007$ ), and was more often located on lower limbs ( $P<0.001$ ), compared to cellulitis. The diagnosis of ADH was associated with higher compliance to our antibiotic therapy protocol, compared to cellulitis: 68% versus (vs.) 24%,  $P<0.001$ , and after April 2009: 53% vs. 64%,  $P=0.033$ . Among the 162 inappropriate antibiotic prescriptions (42%), 75 were deemed justified after analyzing the patient file, but less frequently for ADH compared to cellulitis: 49% vs. 11.5%,  $P<0.001$ .

**Conclusion.** – ADH presents different clinical characteristics compared to cellulitis. The antibiotic therapy protocol for ADH cannot be applied to cellulitis.

© 2012 Elsevier Masson SAS. All rights reserved.

**Keywords:** Acute dermohypodermatitis; Erysipelas; Cellulitis; Evaluation of professional practices

### Résumé

Le tableau de bord (TB) d'infectiologie montrait d'une part, l'utilisation de deux termes diagnostiques, dermo-hypodermite aiguë (DHA) ou cellulites, en conclusion de la prise en charge des infections cutanées et, d'autre part, une hétérogénéité thérapeutique. Notre objectif était de caractériser ces deux groupes diagnostiques et de connaître l'observance de notre protocole d'antibiothérapie.

**Patients et méthode.** – Les DHA et les cellulites étaient sélectionnés à partir du TB répertoriant chaque patient hospitalisé. Le protocole thérapeutique était discuté en avril 2009, l'utilisation des molécules proposées définissant la bonne observance. Les dossiers des patients bénéficiant d'une antibiothérapie non consensuelle étaient analysés afin d'en déterminer les motifs.

**Résultats.** – En 6,5 ans, 304 DHA et 82 cellulites étaient diagnostiquées. Les DHA étaient associées à un plus grand âge ( $p=0,007$ ), une plus grande fréquence d'insuffisance veineuse ( $p=0,015$ ), une moindre fréquence de cancers ( $p=0,007$ ), et étaient plus souvent aux membres inférieurs ( $p<0,001$ ), comparativement aux cellulites. Le diagnostic de DHA était associé à une meilleure observance du consensus comparativement aux cellulites : 68 % versus (vs) 24 %,  $p<0,001$ , et après avril 2009 : 53 % vs 64 %,  $p=0,033$ . Parmi les 162 antibiothérapies ne respectant pas le protocole (42 %), 75 étaient justifiées à la lecture du dossier, moins fréquemment en cas de DHA : 49 % vs 11,5 %,  $p<0,001$ .

**Conclusion.** – Les DHA présentent des caractéristiques cliniques différentes des cellulites. Le consensus thérapeutique des DHA paraît inadapté à la prise en charge des cellulites.

© 2012 Elsevier Masson SAS. Tous droits réservés.

**Mots clés :** Dermo-hypodermite aiguë ; Érysipèle ; Cellulite ; Évaluation des pratiques professionnelles

\* Corresponding author.

E-mail address: roger.pm@chu-nice.fr (P.M. Roger).

Cutaneous infections constitute a heterogeneous nosological group, the French 2000 consensus on erysipelas had spread the concept of acute dermohypodermatitis (ADH) [1]. Even if this term is well defined, there are still clinical cases in which the term “cellulitis” is adequate [2]. In daily practice, according to medical experience, these two terms are probably used synonymously, even though a previous study revealed that some clinical parameters (age, localization) identified two different diagnoses [2].

The continuous professional development (CPD) includes the principles of professional practice assessment (PPA), recording medical practices, analyzing them, taking corrective measures based on the drafting of a decisional protocol/algorithm, then on the assessment of its application [3]. We set up a dashboard (DB) of medical activity in our unit allowing a rapid PPA [4]. The consecutive analyses made with this DB contribute to real time evaluation of our therapeutic practices [5].

Concerning cutaneous infections due to pyogenes bacteria, the DB identified the two previously mentioned terms, ADH (or erysipelas) and cellulitis [6]. The reasons for using these two semantic entities by senior infectious diseases physicians remain unknown, as well as their therapeutic impact. Our objectives were to define ADH and cellulitis on a diagnostic and therapeutic level, and to evaluate observance of the antibiotic therapy protocol for cutaneous infections, implemented in 2009.

## 1. Patients and method

Each hospitalized patient is recorded in our DB spreadsheet with 28 items to be documented. The required data comes from hospitalization reports, which were systematized according to a consensual pattern. The exact definition of hospitalization causes and final diagnosis, extracted from these reports, validated by the senior infectious diseases specialist managing the patient, is classified in categories defined by site of the infection, constituting as many homogeneous groups of hospital stay [4].

ADH (or erysipelas) and cellulitis were selected in the DB, dental or pharyngeal origin and nosocomial origin were exclusion criteria.

The therapeutic protocol was initiated in April 2009, and included all the propositions made during the 2000 consensus conference [1]. Protocol observance was defined as use of recommended agents, without taking into account doses or modes of administration. The prescriptions of antibiotic therapy outside of the protocol justified a complete reviewing of the medical file so as to determine the four essential motivations:

- adaptation to bacteriological results;
- antibiotic therapy adapted to the associated infection;
- antibiotic therapy modified because of an adverse evolution;
- antibiotic therapy adapted to specific comorbidities.

The analysis of the protocol impact relied on the measure of hospitalization duration and on patient outcome. The latter was defined as adverse when the patient needed to be transferred to surgery for abscess drainage or removal of necrotic tissues, to the ICU, or in case of death.

The DB variables were collected with the Statview<sup>®</sup> software. The associations between qualitative data were assessed with the Chi<sup>2</sup> test for a theoretical population superior to 5. The comparisons of averages were made with Mann and Whitney's non-parametric test. The differences were considered significant when the level of test of significance were inferior or equal to 5%.

## 2. Results

Three hundred and four cases of ADH and 82 of cellulitis were diagnosed between July 1, 2005 and December 31, 2011.

### 2.1. Epidemiology of acute dermohypodermatitis and cellulitis

The epidemiological, clinical and therapeutic differences between the two groups are listed in Table 1. The patients presenting with ADH were older ( $P=0.007$ ), presented more frequently with venous insufficiency ( $P=0.015$ ) and less frequently with cancers, compared to patients with cellulitis ( $P=0.007$ ).

The clinical presentation was also different; ADH was more often localized on inferior limbs than cellulitis, 83% versus 56%,  $P<0.001$ . The others localizations were the upper limbs (13% versus 23%), the face (4% versus 12%) and the thorax (<1% versus 11%).

The bacteriological data concerned essentially superficial sampling (Table 2). Hemoculture was made for 359 patients (93%), 29 of these were effectively bacteremic (7.5%), without any significant difference between ADH and cellulitis. Forty-eight strains of *Streptococci* (group A, B, C, or G) were isolated, including 34 in ADH (12%) and 14 in cellulitis (15%).

The antibiotic therapy protocols were significantly different between these two groups. The protocol observance was better in ADH patients ( $P<0.001$ , Table 1). The analysis of 162 antibiotic therapy prescriptions not complying with the protocol (42%) showed they were justified 75 times, but less frequently in ADH: 11.5% versus 49%,  $P<0.001$ . The bacteriological data was the main source of deviation from protocol, observed in 36/75 cases (48%, Table 1).

The duration of hospitalization was significantly shorter in case of ADH, close to 48 hours, compared to cellulitis ( $P=0.005$ , Table 1).

The poor outcomes were less frequent for ADH compared to cellulitis: 16 (5%), versus 10 (12%),  $P=0.026$ .

### 2.2. Diagnostic and therapeutic impact of the antibiotic therapy protocol

Observance of the therapeutic protocol was better for patients with ADH compared to those with cellulitis, during all the study period: 68% versus 21%,  $P<0.001$ .

The protocol was made in April 2009. We compared the treatment for 223 patients with cutaneous infections included between July 2005 and March 2009, including 167 cases of ADH

Download English Version:

<https://daneshyari.com/en/article/3412725>

Download Persian Version:

<https://daneshyari.com/article/3412725>

[Daneshyari.com](https://daneshyari.com)