DERMATOLOGICA SINICA 32 (2014) 137–140

Contents lists available at ScienceDirect

Dermatologica Sinica

journal homepage: http://www.derm-sinica.com

ORIGINAL ARTICLE

Acute generalized exanthematous pustulosis: A retrospective study of 51 cases in Taiwan

Yung-Yi Lee [1,2], Wen-Hung Chung [1,2,*]

[1] *Department of Dermatology, Drug Hypersensitivity Clinical and Research Center, Chang Gung Memorial Hospital, Taipei, Linkou, and Keelung Branches, Taiwan*
[2] *College of Medicine, Chang Gung University, Taoyuan, Taiwan*

ARTICLE INFO

Article history:
Received: Dec 5, 2013
Revised: Dec 26, 2013
Accepted: Dec 26, 2013

Keywords:
acute generalized exanthematous pustulosis
retrospective study
Taiwanese

ABSTRACT

Background/Objective: Acute generalized exanthematous pustulosis (AGEP) is a severe cutaneous adverse drug reaction characterized by fever and numerous sterile non-follicular pustules. It is mainly attributed to drugs, although other factors have been implicated. The objective of this study was to evaluate the clinical and histological features of AGEP in a Taiwanese population.
Methods: In this retrospective study, we reviewed patients diagnosed with AGEP with a EuroSCAR (RegiSCAR) validation score more than 4 (>4, probable to definite cases), between 1992 and 2012 at the Chang Gung Memorial Hospital in Taiwan. Demographic, clinical and laboratory data, pathologic findings, and disease causality were analyzed.
Results: A total of 51 patients were included in this study, with 34 (66.7%) patients being diagnosed with AGEP with drug causality, and 17 (33.3%) patients being diagnosed with AGEP without drug causality. Cases of AGEP with drug causality showed an older average age, and a significantly higher rate of previous drug hypersensitivity history compared to cases of AGEP without drug causality ($p = 0.0018$). None of the patients had a history of psoriasis or had developed psoriasis at the 1-year follow-up. A total of 12 cases (23.5%) had systemic involvement, including liver and kidneys. Penicillin or aminopenicillin (17.6%) and cephalosporins (17.6%) were the most common causative drug groups related to AGEP. In AGEP patients without drug causality, three cases of pathogen infections were identified (1 case of mycoplasma, Coxsackie virus, and Epstein-Barr virus, respectively).
Conclusion: We found that beta-lactam antibiotics were the major drug class responsible for inducing AGEP in a Taiwanese population, but that some infectious pathogens may also contribute to AGEP development.

Introduction

In 1968, Baker and Ryan[1] first reported on five patients with drug-related pustular eruptions of an acute course, who had no history of psoriasis, and the term acute generalized exanthematous pustulosis (AGEP) was later introduced by Beylot et al[2] in 1980. Subsequently, AGEP was better characterized by Roujeau et al[3] and Chang et al,[4] and AGEP is now recognized as a disease entity that is distinct from pustular psoriasis.

AGEP is associated with three main characteristics: (1) an acute generalized formation of numerous, non-follicular, intraepidermal, or subcorneal sterile pustules (<5 mm) on an extensive erythematous background in the absence of bacterial infection, especially on the main flexural folds, as well as on other parts of the body and face; (2) the appearance of neutrophils after T cell infiltration; and (3) the possibility of inducing the dermatologic reaction by patch testing with the corresponding drug. Viral infections,[5] dietary supplements, and hypersensitivity to mercury, radiation, and spider bites[6] have all been reported as possible causes of AGEP; however, approximately 90% of AGEP cases can be attributed to the use of systemic

Conflicts of interest: The authors declare that they have no financial or non-financial conflicts of interest related to the subject matter or materials discussed in this article.

* Corresponding author. Department of Dermatology, Drug Hypersensitivity Clinical and Research Center, Chang Gung Memorial Hospital, Keelung, Taipei and Linkou Branches, College of Medicine, Chang Gung University, 199, Tung-Hwa North Road, Taipei, Taiwan.
E-mail addresses: chung1@cgmh.org.tw, wenhungchung@yahoo.com (W.-H. Chung).

1027-8117/$ – see front matter Copyright © 2014, Taiwanese Dermatological Association. Published by Elsevier Taiwan LLC. All rights reserved.
http://dx.doi.org/10.1016/j.dsi.2013.12.004

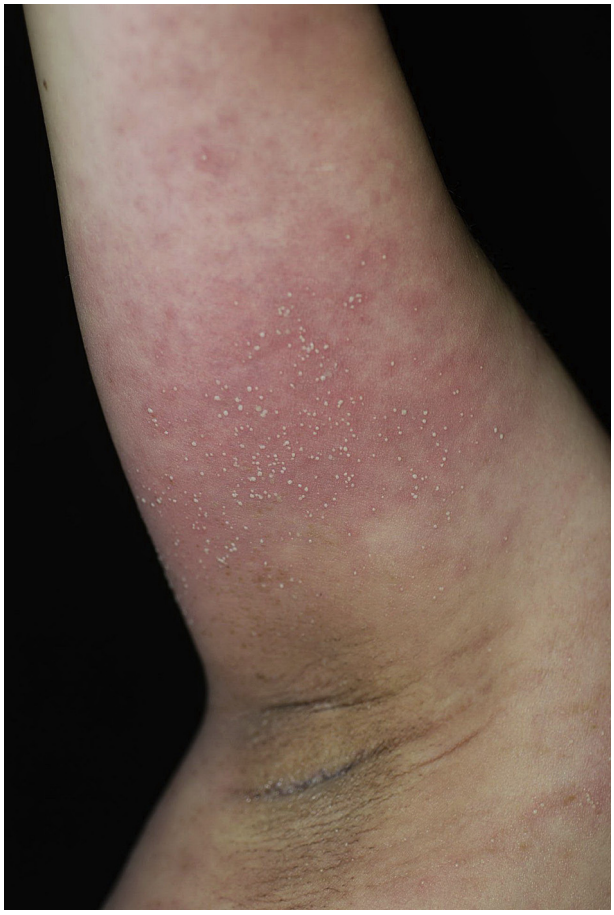

Figure 1 Multiple diffuse erythematous maculopatches studded with several pinpoint, non-follicular pustules with accentuation on the flexural areas in a 34-year-old female patient with drug-induced AGEP.

drugs, especially antibiotics such as aminopenicillin and macrolides.[6] In this study, we reviewed the clinical and laboratory characteristics of 51 patients with AGEP admitted to the Chang Gung Memorial Hospital between 1992 and 2012, to determine the causes of AGEP in a Taiwanese population.

Methods

Patients admitted to the four different branches of Chang Gung Memorial Hospital Health System in Taiwan between 1992 and 2012, and diagnosed with AGEP were analyzed. All cases were assessed by two dermatologists who either evaluated the patients directly, or reviewed photographs, histological data, and clinical information. Information regarding clinical features, laboratory findings, treatment regimens, and medical and family histories was recorded. A diagnosis of AGEP was based on the criteria from the AGEP scoring system established by the EuroSCAR study group.[7] Similarly, criteria for the AGEP validation score were obtained from a multinational European study (EuroSCAR). The AGEP validation score is a standardized scoring system and based on clinical features and histopathology. A patient with an AGEP validation score between 5 and 7 is defined as a probable case, whereas a score between 8 and 12 is defined as a definite case. In this study, we excluded patients with an AGEP validation score <5.

The Naranjo algorithm[8] was used to determine the causality of the suspected adverse drug reactions (ADRs). Briefly, these assessment methods included prior drug reaction history, clinical manifestations of typical drug reactions, chronology or temporal relationship between drug use and onset of reaction, rechallenge, dechallenge, or improvement after discontinuation of suspected drugs, and the notoriety of suspected drugs. The patients were subsequently divided into two groups based on the presence or absence of causative drugs, and the two groups were compared in terms of age, sex, systemic symptoms (such as fever, myalgia, or headaches), duration of disease, history of drug hypersensitivity, and laboratory data.

Results

A total of 51 cases fulfilled the AGEP diagnostic criteria with a validation score >4. Of these patients, 34 cases (66.7%) were identified to have drug causality, whereas 17 cases (33.3%) were not associated with a causative drug (Figures 1 and 2). The mean age of patients with AGEP with drug causality was 53.6 years, which was significantly higher than the age of patients with AGEP without drug causality (30.6 years). No patients in the AGEP without causality group had a history of hypersensitivity. In contrast, 41.2% of

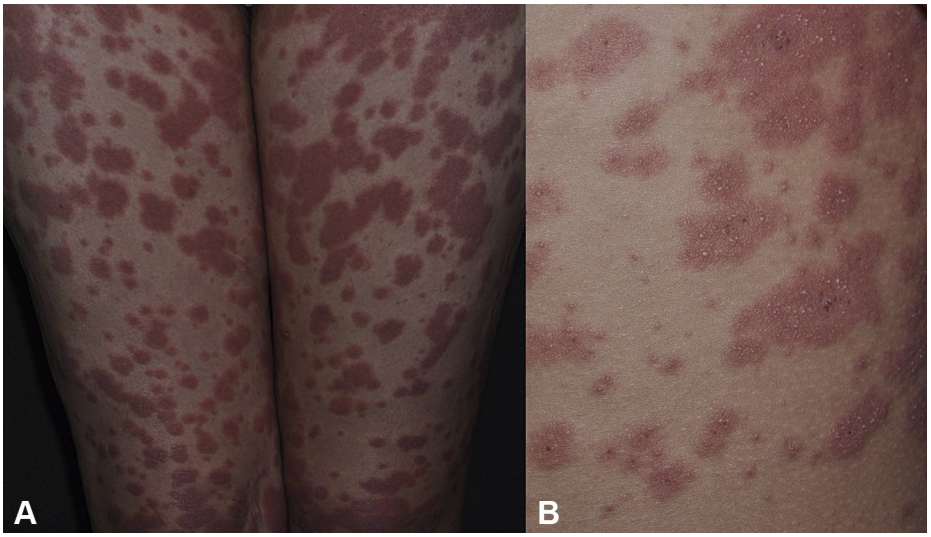

Figure 2 (A) Multiple well-demarcated, erythematous plaques with central purpura on bilateral thighs in a 40-year-old woman diagnosed with AGEP without drug causality. (B) A closer view revealed multiple pustules on the erythematous plaques.