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Original article

Literature analysis of *Acanthopanax* anaphylactic shock in China

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ABSTRACT

The aims of this study are to investigate the occurrence characteristics of *Acanthopanax* (刺五加 *cì wǔ jiā*) anaphylactic shock and to provide objective evidence for the rational use of the medicine. Fifty-seven cases of *Acanthopanax* anaphylactic shock were collected from several professional databases in China. The statistical data of the patients were analyzed with Visual FoxPro 6.0 and Office Excel 2003 by Microsoft (Redmond, WA, USA). The male:female incidence ratio was 0.5:1. Fifty-six (98.25%) patients were older than 30 years. Thirty-nine (68.42%) patients had an unknown allergy history. Nine (15.79%) patients used *Acanthopanax* for unlabeled indications. In most (98.25%) patients, *Acanthopanax* was used in the form of dosage injection. Anaphylactic shock occurred within 30 minutes after treatment in 52 (94.54%) patients, and all episodes occurred during the infusion process. In two (3.51%) patients, the episode occurred when they used *Acanthopanax* for the second time. In one (1.75%) patient, the episode occurred during the third time of use. The clinical symptoms of anaphylactic shock are diversified, but all patients presented with cardiovascular and respiratory system symptoms. *Acanthopanax* injections that led to anaphylactic shock were produced exclusively by four manufacturers. Four (7.02%) patients died and 49 (85.96%) patients were cured, but the status of four patients is unknown. Because an *Acanthopanax* injection may cause anaphylactic shock and can be fatal in severe cases, physicians and patients must pay close attention to using it rationally. Clinicians should carefully consult the allergic constitution of their patients, strictly follow the guidelines of the drug, use *Acanthopanax* in the oral dosage form as much as possible, and strengthen therapeutic monitoring.

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1. Introduction

Acanthopanax (刺五加 *cì wǔ jiā*) injection is formulated with extracts from the stems and leaves of *Acanthopanax senticosus*. It contains a variety of active ingredients such as eleutheroside, iso-fraxidin, and hyperoside.¹ An *Acanthopanax* injection can dilate blood vessels, increase coronary and cerebral blood flow, reduce myocardial oxygen consumption, improve microcirculation,² reduce blood viscosity, scavenge free radicals,³ regulate immune function,⁴ regulate bidirectionally in the central nervous system, and reduce damage caused by virulence factors.⁵ In China, an *Acanthopanax* injection can be applied to treat transient ischemic

attack, intracranial arteriosclerosis, intracranial thrombosis, intracranial embolism, coronary disease, angina pectoris, neurasthenia, and menopausal syndrome. An *Acanthopanax* injection is a necessary traditional Chinese medicine (中醫 *zhōng yī*; TCM) that is stocked in traditional Chinese hospital emergency departments in China. Despite widespread use, *Acanthopanax* could possibly lead to anaphylactic shock. Therefore, we collected several published Chinese literature reports on *Acanthopanax* anaphylactic shock to determine its occurrence characteristics and provide an objective basis for its clinical rational use (Fig. 1).

2. Materials and methods

2.1. Materials

In three Chinese professional databases, which were variable information processing (VIP) information, Chinese Journal Full-text Database, and Wanfang Data, we entered keywords such as

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Graphical summary

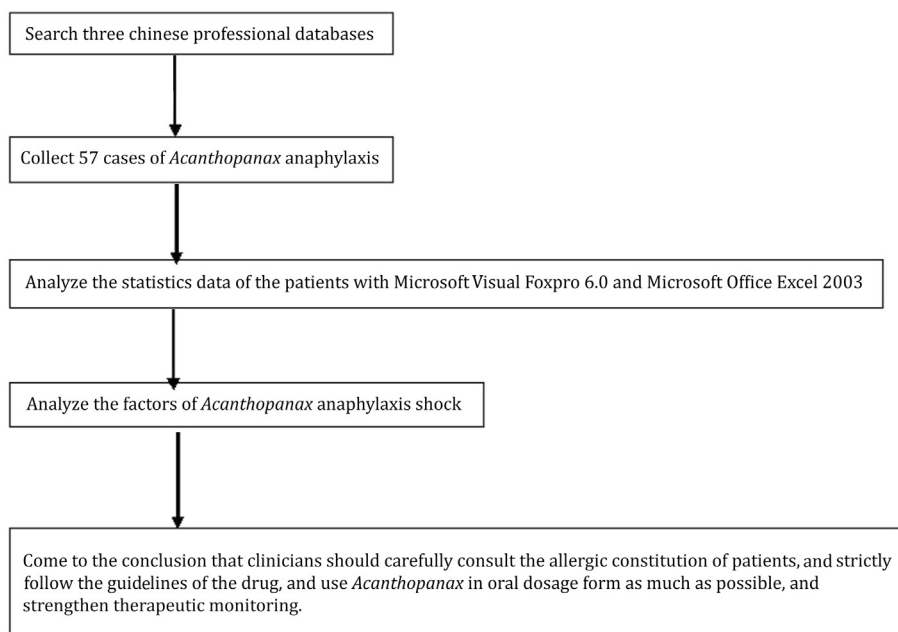


Fig. 1. Technical route of this article.

“*Acanthopanax*”, “shock”, “allergy”, or “dead” to find published Chinese literature concerning *Acanthopanax* anaphylactic shock. Except for one duplicate report, 52 evaluable articles were collected that contained 57 cases of *Acanthopanax* anaphylactic shock.

Relevant information data of the 57 cases were collected as follows: (1) demographics (e.g., age, gender, allergy history); (2) drug use (e.g., dosage form, dosage, usage, solvent, concomitant medications, manufacturer, and production batch number); (3) occurrence of anaphylactic shock (e.g., time of shock occurrence, symptom distribution, complications, time to improvement or recovery, shock outcome); and (4) other data (e.g., reporting time of the case).

2.2. Statistical analysis

Visual FoxPro 6.0 (Microsoft) was used to establish an “*Acanthopanax* anaphylactic shock database management system” wherein relative data were input. A statistical analysis was then performed on the data involving the aforementioned information by Office Excel 2003 (Microsoft).

3. Results

3.1. General situation of the patients

3.1.1. Gender and age distribution of the patients

There were 38 (66.67%) female patients and 19 (33.33%) male patients. The male:female ratio was 0.5:1. This finding is consistent with the literature reports.⁶ The minimum age of the patients was 18 years and the maximum age was 97 years. Except for one patient of unknown age, 56 (98.25%) patients were older than 30 years. Table 1 lists the age distribution. Among these patients, the ratio of the below-30-year-old patients to over-30-year-old patients was 1:55. However, because the sex ratio and age distribution of the patients treated by *Acanthopanax* (刺五加 *cì wǔ jiā*) is difficult to estimate accurately, further study is needed.

3.1.2. Allergy history

Among the 57 patients, 39 (68.42%) patients had an unknown allergy history, seven (12.28%) patients had a history of allergy to drugs or food, and 11 (19.30%) patients had no allergy history.

3.2. The primary disease distribution among the patients

Among the 57 patients, the primary diseases of five (8.77%) patients were unknown. The top three diseases were cardiovascular disease (e.g., coronary disease, angina pectoris) in 18 (31.58%) patients, cerebrovascular disease (e.g., cerebral infarction, intracranial arteriosclerosis) in ten (17.54%) patients, and neurasthenia in eight (14.03%) patients. There were nine (15.79%) patients who used *Acanthopanax* for unlabeled indications; their primary diseases were renal insufficiency, carbon monoxide poisoning, acute tonsillitis, fractures, hepatitis B, hyperthyroidism, cervical spondylosis, and chronic bronchitis (1 patient each).

3.3. Conditions of *Acanthopanax* use

3.3.1. Distribution of the dosage forms

Among the 57 patients, 56 (98.25%) patients used the injection formulation. The only exception was that one (1.75%) patient had

Table 1
The age distribution of the cases of *Acanthopanax* anaphylactic shock.

Age (y)	No. of cases	Constituent ratio (%)	Chinese population sample data	Chinese population constituent ratio (%)
< 30	1	1.79	535,548	42.48
30–39	12	21.43	246,749	19.58
40–49	16	28.57	185,781	14.74
50–59	14	25.00	139,151	11.04
≥ 60	13	23.21	153,269	12.16
Total	56	100.00	1,260,498	100.00

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