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Anaphylactic Reactions in People Taking Amophophallus Paeoniifolius (Suweg)

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Abstract
Systemic anaphylactic reactions are a rare condition with a prevalence of around 1.6-5.1%. Based on the latest epidemiological data the ratio of fatal anaphylactic reactions is approximately 1%. To diagnose anaphylaxis, sampson criteria are used. Anaphylaxis is a severe, potentially fatal, systemic allergic reaction that occurs suddenly after contact with an allergycausing substance. Anaphylaxis, it was acknowledged that no criteria will provide 100% sensitivity and specificity, but it was believed that the criteria proposed are likely to capture more than 95% of cases of anaphylaxis. Anaphylaxis itself occurs in 15 of 10,000 patients and is characterized by acute reactions, with diffuse erythema, pruritus, urticaria, angioedema, bronchospasm, laryngeal edema, hyperperistalsis, hypertension, cardiac arrhythmias, hemolytic anemia. Most symptoms develop quickly (five to 30) minutes after exposure. A 44-year-old with an anaphylactic reaction has been reported. The administration of epinephrine 0.3-0.5 cc deltoid IM and general management of anaphylaxis in the initial acute condition of anaphylactic reaction is given to the patient.

Keywords: Anaphylaxis reaction; laryngeal edema; Suweg;

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Introduction

Allergic reactions to rashes to cases of anaphylaxis are one of the cases that can be found in the emergency department. Anaphylaxis is a severe, potentially fatal systemic allergy. Systemic allergic reactions occur suddenly after contact with the allergen (Sampson et al., 2006; Sudoyo, n.d.). Naphylaxis is mediated by IgE and is caused by degranulation of mast cells and basophils and the release of inflammatory mediators such as histamine, tryptase, prostaglandins, leukotrienes, cytokines, and chemokines. These mediators cause smooth muscle contractions, vasodilation, and increased vascular permeability, which will lead to urticaria, angioedema, bronchoconstriction and hypotension (Sampson et al., 2006; Sudoyo, n.d.; Turner et al., 2017).

Anaphylactic reaction is a clinical manifestation of allergy that is often encountered and is an emergency in both pediatrics and adults. Systemic anaphylactic reaction is a rare condition with a prevalence of around 1.6-5.1% (Kim et al., 2017). Based on the latest epidemiological data, the ratio of fatal anaphylactic reactions is approximately 1% (Ma et al., 2014).

Diagnosis of anaphylaxis can be made clinically based on the symptoms a patient has. Anaphylactic reactions can be triggered by any agent that can activate mast cells and basophils, but in general there are several allergens such as food, drugs, animal stings or poisons, latex, and allergen injection during immunotherapy.

In terms of identification of individuals experiencing anaphylactic reactions, the diagnostic criteria according to Table 1. It is recognized that there is no criterion that will provide 100% sensitivity and specificity, but these criteria can diagnose 95% of anaphylactic cases. Since the majority of anaphylactic reactions include skin symptoms, it was noted in more than 80% of cases when carefully assessed that at least 80% of anaphylactic reactions should be identified by criterion 1, even when the allergic status of the patient and the possible cause of the reaction may not be known (Bohlke et al., 2004; Lieberman et al., 2005). In a patient with a history of allergy and possible exposure, criterion 2 will provide ample evidence that an anaphylactic reaction is occurring. Gastrointestinal symptoms were included as symptoms because of the severity of the anaphylactic reaction (Brown, 2004; Kemp & Lockey, 2002). Criterion 3 should be identified as an infrequent patient who develops an acute episode of hypotension after exposure to a known allergen, as described by Pumphrey and Stanworth (Sampson et al., 2006).

Table 1. Clinical criteria for the diagnosis of anaphylaxis (Sampson et al., 2006)

If there is at least one of the three criteria below strongly supports the diagnosis of anaphylaxis
1. Attacks of an acute nature (minutes to hours) with involvement of the skin, mucosal tissue, or both (e.g., generalized urticaria, pruritus or redness, swelling of the lips-tongue-uvula). Plus at least one of: • Respiratory distress (dyspnea, wheezing or bronchospasm, stridor, decreased PEF*, hypoxemia) • Decreased blood pressure or symptoms related to organ damage (hypotonia, syncope, incontinence)
2. At least two of the following symptoms developed immediately after exposure to the suspected allergen (minutes-hours): • Involvement of skin-mucous tissue (generalized urticaria, itching, redness, swelling of the lips-tongue-uvula) • Respiratory distress (dyspnea, wheezing or bronchospasm, stridor, decreased PEF*, hypoxemia) • Decreased blood pressure or symptoms related to organ damage (hypotonia, syncope, incontinence) • Persistent gastrointestinal symptoms (cramping, abdominal pain, and vomiting)
3. Decreased blood pressure after exposure to a known allergen (minutes to hours): • Toddlers and children: low systolic blood pressure (age-specific) or decreased systolic blood pressure >30%** • Adult: systolic <90mmHg or systolic decrease >30% from baseline
*PEF : Peak Expiratory Flow
** Definition of low systolic blood pressure for children, 1 month-<1 year : <70mmHg, 1-10 years: less than (70mmHg + [2 x age]), 11-17 years: <90mmHg

As with the care of critically ill patients, treatment of anaphylaxis begins with rapid assessment and maintenance of the airway, breathing, and circulation. When a patient meets any of the 3 criteria for anaphylaxis outlined above, the patient should receive epinephrine immediately, because epinephrine is the treatment of choice in anaphylaxis. Subsequent interventions are determined based on the clinical course and response to epinephrine.

Epinephrine is the treatment of choice for anaphylaxis (Lieberman et al., 2005; Sudoyo, n.d.). Dilute epinephrine, 0.01 mg/kg (maximum dose, 0.5 mg) administered intramuscularly every 5 to 15 minutes as needed, is the recommended dose for controlling symptoms and maintaining blood pressure (Sampson et al., 2006; Sudoyo, n.d.). The 5-

minute interval between injections can be liberalized to allow for more frequent injections if deemed necessary by the physician.

High-flow oxygen (via a nonrebreather mask or endotracheal tube) should be administered to patients with respiratory symptoms or hypoxemia. People who are hemodynamically unstable may benefit from oxygen. Inhaled beta 2-agonists, such as albuterol, may be useful for bronchospasm refractory to epinephrine.

Patients in anaphylactic shock (ie, those with anaphylaxis and signs of critical organ hypoperfusion) should be placed in the supine position with the lower extremities elevated. This recommendation is based on evidence that passive leg enhancement can increase stroke volume and cardiac output by shifting fluid centrally in patients who are in shock.

Patients who remain hypotensive despite receiving epinephrine should undergo aggressive fluid resuscitation. Large volumes of crystalloid may be required in the first 5 to 10 minutes, in severe reactions with hypotension, up to 35% of the blood volume is extravasated in the first 10 minutes, and vasodilation occurs, which can lead to a reduction in effective blood volume and a distributive shock (Pumphrey & Stanworth, 1996). The volume administered should be adapted to the clinical situation; Persistent hypotension requires a more aggressive approach with multiple fluid boluses (10–20 mL/kg), including colloids, as well as crystalloids. While fluid management is not too aggressive in patients who respond to initial epinephrine therapy and patients who experience respiratory distress who are in excess fluid. Strong vasopressors, such as noradrenaline, vasopressin, or metaraminol, may be needed to treat vasodilation if epinephrine and fluid resuscitation fail to maintain a systolic blood pressure greater than 90 mm Hg (Brown, 2005).

Antihistamines (H1- and H2 antagonists) have a slower onset of action than epinephrine, have little effect on blood pressure, and should be considered as a second-line treatment for anaphylaxis. Antihistamines are useful for the symptomatic treatment of urticaria-angioedema and pruritus. Diphenhydramine, given intravenously or intramuscularly (or orally for mild symptoms), may be given at 25 to 50 mg for adults. Treatment with a combination of H1- and H2 antagonists have been reported to be more effective in treating skin manifestations of anaphylaxis than treatment with H1-antagonists alone (Kill et al., 2004; Sampson et al., 1992).

The effectiveness of corticosteroids in anaphylaxis has been determined in placebo-controlled trials. Because of the slow onset of action, steroids are not useful in the acute stage of management. Corticosteroids are recommended for use in preventing protracted or biphasic reactions, although there is no evidence to prove this (Simons, 2004). If given, the dose of intravenous corticosteroids should be equivalent to 1.0 to 2.0 mg/kg per dose of methylprednisolone every 6 hours. Oral administration of prednisone, 1.0 mg/kg, up to 50 mg may be sufficient for milder attacks.

After treatment of an anaphylactic reaction, an observation period should be considered for all patients because these reactions may recur because the effects of epinephrine are depleted (intramuscular epinephrine increases serum levels for one hour

or more) and because the risk of a biphasic reaction. The occurrence of a biphasic reaction has been established in the literature and appears to occur in 1% to 20% of anaphylaxis and the reported time interval between the initial reaction and the onset of the second phase ranges from 1 to 72 hours (Brown, 2005; Simons, 2004).

Figure 1. Plants Amorphophallus Paeoniifolius (Suweg) and Bulbs

Amorphophallus paeoniifolius (Suweg) and elephant foot tubers (elephant foot yam) are plant species from the Araceae family. It is considered food.

A staple in India, the Philippines, Indonesia, Sumatra, Malaysia, Bangladesh, China, and other Southeast Asian countries. This plant grows well in aerated, coarse-textured soil that receives adequate rainfall. Edible tubers or underground plant stems can weigh up to 9 kg and are rich in carbohydrates, protein, vitamin A, calcium, and phosphorus. Exposure to harmful calcium oxalate crystals is common worldwide, especially in children who are curious about putting a foreign object in their mouth. Symptoms are generally minimal and self-limiting. In one report nearly 200 Araceae Exposures were summoned to a single poison center, only 4 patients experienced symptoms and all were mild (Dykewicz et al., 1986; Gibler et al., 1992). In another report of nearly 11,000 exposures to calcium oxalate identified in the poison center, only 34.7% of patients developed symptoms. Overall, oral pain and irritation were the most common symptoms, followed by skin pain from handling the plant. The same authors reviewed all accessible case reports prior to 1999 and compared these with reported symptoms of calcium oxalate exposure in the poison center data. They found that of these case reports, 29.6% developed aphonia, 48.1% developed respiratory obstruction, and 11.18% died, whereas none of these findings were reported at centers (Duangmee et al., 2019; Sikri & Bardia, 2007). The nutrients contained in 100 grams and the chemical composition of Amorphophallus tubers are presented in the table.

Table 2 Nutrient content in 100 grams of Amorphophallus

Amorphophallus	Nutrient content per 100gr of tubers									
	Water	Protein	Fat	KH	Fiber	Ca	P	Fe	Vit A	Calories
	(g)	(g)	(g)	(g)	(g)	(mg)	(mg)	(mg)	(IU)	(kJ)
A. Paeniniifolius	75 – 79	1 - 5	0,2 - 2	18	0,6	50	20	0,6	434	420
A. Konjak	78,9	1,2	0,2	19	0,8	49	22	0,6	270	340
A. Muelleri	78,9	1,2	0,2	19	0,8	49	22	0,6	270	340

Table 3 Chemical composition of tubers of several types of Amorphophallus

Type	Nutrient content per 100gr of tubers						
	Moisture content	Dry matter	starch	Mannan	Poliosa Lain	Crude fiber	Glucose
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
A.Campanulatus Bl	70,1	29,2	77,0	0,0	14,2	8,5	0
A. Variablilis Bl	78,4	21,6	27,0	44,0	0,0	6,0	9,0
A.Oncophyllus Pr	79,7	20,3	2,0	55,0	14,0	8,0	0
A.Bulbifer Bl	80,0	20,0	70,0	5,5	13,0	10,0	0
A.Konjac Kc	80,0	20,0	10,6	64,0	5,0	5,0	0

Result

Patient FEM, 44 years old, male, Norwegian citizen, on April 4 came to the ER at Sanglah Hospital with complaints of swollen lips, and swollen lips that had been felt 1 day before admission to the hospital and had been gaining weight for 2 hours before admission to the hospital. Swelling is felt to spread until it feels like burning on the tongue accompanied by saliva that continues to drip. This burning sensation is felt to come and go and decrease when given drinking water. Swelling of the eyes is not complained of. No shortness of breath. Patients also complain of itching all over the body, especially the hands and feet. The patient has had a history of smoking since 2008 when the patient was 14 years old. The patient has a history of drinking alcohol and drinking alcohol 1-2 times a month with an alcohol volume of 500-1000 ml.

On physical examination, the patient was aware of the Glasgow Coma Scale (GSC) E4 V5 M6, blood pressure at the time of admission to the ER was 100/80 mmHg, pulse 86x/minute to 62 times per minute, respiratory rate 20x/minute and axillary temperature 36.5°COn eye examination, no swelling was found, urticaria was found on the forehead and face. On examination of the heart and lungs within normal limits, on examination of the abdomen within normal limits, on examination of the deep extremities found multiple urticarias.

Lab results 04/04/2021: White Blood Cell (WBC): 13.65 Hemoglobin (Hb): 14.10 Hematocrit (HCT): 42.20% Mean Corpuscular Volume (MCV): 86.10 Mean Corpuscular Hemoglobin (MCH): 28.80 Platelet (PLT): 246. Serum Creatinine: 0.80 Blood Urea Nitrogen (BUN): 13.10, Blood sugar: 129, Serum Glutamic Oxaloacetic Transaminase

(SGOT): 20.4, Serum Glutamic Pyruvic Transaminase (SGPT): 15.00, Sodium: 138, Potassium: 4.33, PH 7.42, pO2 118, pCO2 35.0, Beecf -1.8, HCO3- 22.70, TCO2 23.80, SO2c 99.0%.

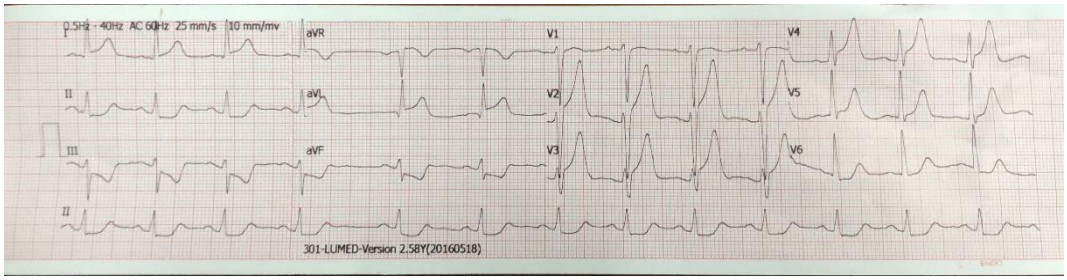

Figure 2. ECG when a new patient is in the ER

Electrocardiography results when just entering the ER with the following results: Sinus rhythm, normal axis, normal P wave, PR interval 0.16 seconds, pulse 88x/min, QRS wave 0.08 sec, SV2 + RV5 < 3.5 mV, R/S ratio V1 < 1,
Conclusion: Sinus Rhythm, pulse 88 times per minute.

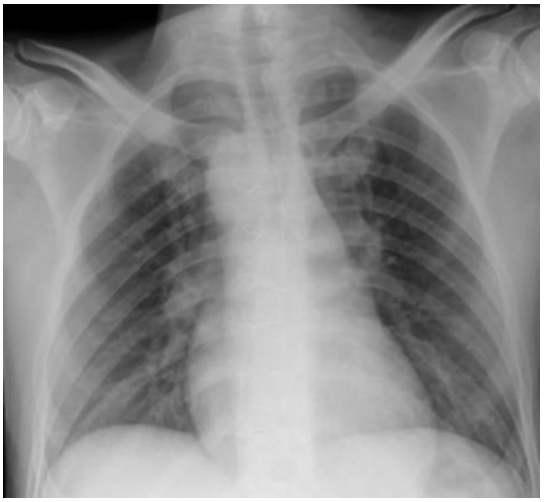

Figure 3. X-ray of the thorax

The results of the patient's chest roentgen examination during MRS on 06/04/2021 with the impression that there were no abnormalities in the heart and lungs. Therapy: Infusion of Nacl 0.9% 20 tpm, Hydrocortisone 200 mg every 8 hours iv, Diphenhydramine 10 mg every 24 hours iv, Lansoprazole 30 mg every 12 hours iv, Paracetamol 500 mg every 8 hours if fever, Tantum Verde mouthwash 15 ml every 8 hours orally. The results of consultation with the division of allergy immunology with anaphylactic reactions ec susp Suweg. Performed examination of IgE Total: 220.

Figure 4. Photograph of the patient

Discussion

Anaphylaxis is a severe, potentially fatal systemic allergy. A systemic allergic reaction occurs suddenly after contact with the allergenic substance. The diagnosis of anaphylaxis was based on Sampson's criteria. Anaphylactic reactions can be triggered by any agent that can activate mast cells and basophils, but in general, there are several allergens such as food, drugs, animal stings or poisons, latex, and allergen injection during immunotherapy. Treatment of anaphylaxis begins with rapid assessment and maintenance of the airway, breathing, and circulation.

In this case, a 25-year-old male patient was diagnosed with an anaphylactic reaction with ecsusp food (Suweg) and mucosal injury. The patient said he had no previous history of allergies. In the reported case, after consuming Suweg (Calcium Oxalate) complaints of swollen lips, swollen lips, and weight gain 2 hours before admission to the hospital. Patients also complain of itching all over the body, especially the hands and feet. Swelling is felt to spread until it feels like burning on the tongue accompanied by saliva that continues to drip. This burning feeling is felt to come and go and decrease when given drinking water and also dizzy too almost faint. The patient was diagnosed with an anaphylactic reaction because it met criteria 2 of the three Sampson criteria. The patient has also been tested for total blood serum IgE with an increase in the value of 220 IU/ml which indicates the patient does have a history of allergies or atopy, in this case, the patient is allergic to Suweg.

Management, in this case, was given methylprednisolone 4 mg every 8 hours after the anaphylactic condition resolved. Where this aims to prevent the occurrence of repeated allergic reactions. And in this case, the anaphylactic reaction itself was given epinephrine 0.5 cc IM deltoid therapy.

Conclusion

A male patient, 44 years old, has been reported with a diagnosis of anaphylactic reaction ec susp food (Suweg) dd mucosal injury who experienced an anaphylactic reaction and the condition worsened after the anaphylactic reaction occurred. The

condition of anaphylaxis itself is supported by the fulfillment of 2 of Sampson's criteria. Administration of epinephrine 0.3-0.5 cc IM deltoid and general management of anaphylaxis in the acute condition of the initial anaphylactic reaction are still being carried out

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