Anaphylaxis and anaphylactoid reactions and allergies
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Anaphylaxis/ anaphylactoid reactions

Anaphylaxis is a serious, potentially life-threatening reaction that involves multiple organs and usually rapid in onset. At its most severe, there is bronchospasm, upper airway angioedema and hypotensive shock. Anaphylaxis is an IgE mediated type 1 hypersensitivity reaction that results in mast cell activation and release of multiple mediators such as histamine, leukotrienes, TNF and various other cytokines. Anaphylaxis is the most serious and life-threatening form of systemic allergic reactions.

Anaphylactoid reactions refer to an identical clinical pattern that is however non-IgE mediated. Certain allergens including drugs can trigger the mast cell cascade directly without involving IgE as the initial mediator. *Anaphylactoid reactions therefore do not require prior sensitization as they are direct mass cell releasers and may produce anaphylaxis-like reactions in a dose-dependent manner*. By contrast, classic anaphylaxis is not dose-dependant as the immune system is primed to recognize even minute amounts of the allergen and able to amplify the reaction via IgE mediation. For practical purposes, we can consider the clinical effects and management of anaphylaxis and anaphylactoid reactions to be identical.

The incidence of anaphylaxis/ anaphylactoid reactions in commonly used sclerosants (STS and POL) ranges from 0.01% to 0.1%.[1,2] A series of 2686 patients by Thibault revealed an incidence of 0.1% (4 cases) anaphylaxis/ anaphylactoid reaction to 3% STS sclerotherapy.[2] These (non-fatal) reactions occurred within 30 minutes of the injection and included systemic systemic features of urticaria, dizziness (hypotension), wheezing, tachycardia, nausea, vomiting and abdominal pain. An internet based phlebology survey by Varcoe (pre-foam) revealed an allergic reaction rate of 0.03% to 0.3% (mild to severe).[3]

It should be noted that although exceedingly rare, there have been documented deaths from anaphylaxis/ anaphylactoid reactons for both STS/ POL. The German POL network documented 35 cases of allergies from 1987 to 1993 (6yrs) where most were either vasovagal in nature or of unproven allergies.[4] Of these 35 reported cases, 9 patients were given repeat challenges with POL resulting in 3 out of the 9 patients showing true POL allergy.[4] Unfortunately one suffered a fatal anaphylactic reaction despite maximum intervention.

Other allergic reactions

Other (milder) allergic reactions may develop as a result of sclerosant exposure. These are usually confined to the skin as urticaria (type 1 IgE-type hypersensitivity) or other non-specific exanthema. Goldman reported an incidence of 0.3% (47 out of 14000 cases)

of “non fatal allergic reactions” which includes generalized urticaria, erythema and other non-specific papulosquamous rash.[1,4] The Australian polidocanol study involving 8000 patients over 2 years revealed a 0.2% incidence of allergic reaction that specifically noted the absence of anaphylaxis.[5] Urticaria alone does not constitute anaphylaxis and should not be treated as such (with adrenaline) but should be monitored and treated with oral antihistamines if necessary.

Contact reactions can also occur from exposure to sclerotherapy paraphernalias such as adhesive tape, latex gloves, local anaesthetic (for release of trapped blood) and even the silicon component of thigh-high compression stockings. Many of these reactions are may be irritant rather than allergic in nature. Additional investigations such as patch testing or similar challenges may be necessary to confirm allergy. Most skin contact allergies are not immediate but delayed and may take up to 24-48 hours to manifest after sensitisation, and typically presents as an eczematous rash rather than urticaria/ hives characteristic of type 1 immediate type hypersensitivity.

The allergy controversy

Many physicians are skeptical about the purported frequency of allergic reactions in the commonly used sclerosants (STS/ POL). Goldman asserts that by contrast, he has not experienced any serious allergic reactions over 20 years involving over 20,000 patients.[4] Weiss also claims no allergic reactions in over 100,000 injections since changing over to latex-free syringes in 1994.[6] Weiss believes that many of the STS allergic reactions can be attributed to latex leaching from syringes.[6] Allergies may also theoretically arise from impurities in sclerosants such as Carbitol, found in STS sclerosants.[7] Anecdotally, foam sclerosants are associated with fewer allergic reactions. The author (AL) believes that many of the STS related allergic reactions are anaphylactoid in nature and dose dependent, hence, fewer reactions are now seen with the typically lower dosages (liquid amounts) of STS used in foam echosclerotherapy.

Clinical features of anapylaxis/ anaphylactoid reactions

Mucocutaneous	Respiratory	Cardiovascular	Neurological	Abdominal
• Urticaria • Angioedema • Flushing • Itch • Rhinitis • Conjunctivitis	• Wheeze • SOB • Cough • Dysphagia • Stridor • Cyanosis	• Tachycardia • Bradycardia • ECG changes • Hypotension • Cardiac arrest	• Vascular headache • Dizziness • Confusion • Feeling of doom • Collapse	• N&V • Pain

Emergency management of allergic reactions

- Urticaria (generalised)
    - Evaluate for wheezing/ stridor
    - Check vital signs
    - Antihistamines +/- corticosteroids (non-dermatologists)
- Anaphylaxis
    - IM adrenaline (lateral thigh) 0.25mg to 0.5mg (0.25ml to 0.5ml 1:1000 adrenaline)
    - IV access
    - Lay patient flat and elevate legs
    - O2 +/- airway ventilation/ support
    - Call ambulance

References:

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4. Goldman MP, Bergan JJ, Geux Jean-Jerome. Sclerotherapy: Treatment of varicose veins and telangiectatic leg veins, 4th edn. Philadelphia: Mosby Elevier, 2007; p215-7

5. Conrad P, Malouf GM, Stacey MC. The Australian Polidocanol (Aethoxysklerol) study. Results at 2 years. Dermatol Surg. 1995;21:334-6.

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