

Adverse Events following Immunisation – Common and Uncommon

28th August 2014

Benefit / Risk

- All administration of medicines must maximise benefit and minimise risk
- Risk can be minimised but not avoided

Benefit / Risk

How to maximise benefit:

- Timing of administration (age)
- Timing of administration (scheduling)
- Giving the correct dose
- Using the correct administration method

Benefit / Risk

How to minimise risk:

- Observe contraindications
- Fully inform (so that patients appreciate risk)
- Give the correct dose
- Use the correct administration method

Case 1

14 year old female collapses seconds after receiving HPV vaccination

Case 1

Placed in recovery position

Case 1

Ambulance called by dialling 911

Case 1

Blood pressure 80/50

- In shock
- Given adrenaline

Case 1

Wakes up in time for arrival of ambulance

Case 1

Vasovagal episode

- Pallor
- Collapse / unresponsive for a brief period
- Drop in blood pressure, may be pulseless (briefly)
- May have tonic-clonic movements

Case 1

Vasovagal episode

- Occurs soon after administration
- Related to the needle, not the vaccination
- Usually rapid recovery
- Self-limiting
- Often a history of fainting
- Can cause head or other injury

Case 1

Vasovagal episode

- Ideally foot of couch raised
- Leg raising just as effective
- Need to reassure observers as causes anxiety and can be infectious

Case 2

Twelve year old female develops acute wheezing and breathlessness 4-5 minutes after HPV

Case 2

Pins and needles and numbness around mouth and at fingertips

Case 2



Case 2

Anxiety attack

Case 2

- Commoner in females
- Non-progressive
- 'Normal' vital signs
- No skin signs / rashes

Case 2

- Reassurance (patient, staff and observers)
- Paperbag / rebreathing

Case 3

12 year old presents 2 hours post
immunisation with a rash

Case 3

Itchy

Red

Raised 'wheals'

Gets worse when scratched

Came on quite 'suddenly'

Case 3

History of allergy; asthma, eczema, allergic to dairy products as a baby.

Case 2



Case 3

Urticaria

- Urtica = Nettle
- Urere = Burn
- Histamine release from Mast Cells
- Occurs at the level of the dermis – leads to capillary leakage / production of excess interstitial fluid

Case 3

Urticaria

- Reassurance – ‘hives’
- IgE mediated – allergy
- Treated with antihistamines
- More severe case – prednisolone
- Topical corticosteroids can be effective to relieve itch

Case 4

Five year old with swelling around eyes

Case 4

- No history of allergies

Case 4

- Frightened as can't open eyes



Case 4

Angioedema / angioneurotic oedema /
Quincke's oedema

Case 4

- Similar to urticaria but occurs in dermis, subcutaneous tissue, mucosa and submucosal tissue
- Bradykinin and histamine release increases vascular permeability
- Can cause airway obstruction (medical emergency)

Case 4

- Treated with antihistamines
- Can be treated with steroids if severe
- Airway obstruction – treated with adrenaline

Case 5

Ten minutes after MMR, five year old boy becomes wheezy, develops swelling of face and arms, complains of stomach pain

Case 5

Soon after collapses



Case 5

Dial 999 / 112 (get help)

Case 5

Assess airway, breathing & circulation

Case 5

Stridor, wheeze, circulatory shock

Case 5

Lie patient flat with legs elevated (unless this worsens breathing)

Case 5

Treatment

- Adrenaline (epinephrine) must be administered immediately (1 in 1000 given intramuscularly)
- Works within 10 minutes, can be repeated after 15 minutes up to 3 doses
- Chlorpheniramine – unproven in the acute attack
- Hydrocortisone – unproven; may have a role in prevention of a secondary attack
- Oxygen (if available)
- Salbutamol (if available)
- i.v. fluids (if available)

Case 5

Anaphylaxis

- Ana (against) phylaxis (protection)
- Incidence 0.4 – 2 per million vaccinations
- Most begin within 30 minutes
- Must observe immunized child for 15 minutes, stay on site for 30 minutes

Case 5

Anaphylaxis

- Sudden onset
- Rapidly progressive
- Involves multiple (2 or more) organ systems

Case 5

Anaphylaxis

Dermatologic or mucosal

- generalized urticaria or erythema
- angioedema, localised or generalised
- generalised pruritus with skin rash

AND

Cardiovascular

- measured hypotension
- uncompensated shock,

Case 5

OR

Respiratory

- bilateral wheeze (bronchospasm)
- stridor
- upper airway swelling (lip, tongue, throat, uvula or larynx)
- respiratory distress—2 or more of the following:
tachypnoea, increased use of accessory
respiratory, muscles, recession, cyanosis, grunting

Case 5

+/-

Gastrointestinal symptoms (e.g. vomiting, severe abdominal pain, diarrhoea)

Vasovagal v. Anaphylaxis

Onset:

Vasovagal: Immediate

Anaphylaxis: Usually within 5 minutes, but can occur within 1-2 hours

Vasovagal v. Anaphylaxis

Symptoms/signs (Skin)

Vasovagal: Generalised pallor; cold, clammy skin

Anaphylaxis: Itch, generalised, erythema, urticaria or angiooedema (localised swelling of face, mouth, etc.)

Vasovagal v. Anaphylaxis

Symptoms/signs (Respiratory):

Vasovagal: Normal or shallow, not laboured

Anaphylaxis: Cough, wheeze, stridor, tachypnoea, recession, cyanosis

Vasovagal v. Anaphylaxis

Symptoms/signs (Cardiovascular):

Vasovagal: Bradycardia but strong carotid pulse, hypotension corrected when lying

Anaphylaxis: Tachycardia, weak / absent pulse, sustained hypotension unless specific treatment

Vasovagal v. Anaphylaxis

Symptoms/signs (Neurological):

Vasovagal: Lightheaded, possible loss of consciousness, improves on lying down

Anaphylaxis: Severe anxiety and distress, loss of consciousness

Vasovagal v. Anaphylaxis

Vasovagal:

BP

P

RR

PO₂

Anaphylaxis:

BP

P

RR

PO₂

References

www.immunisation.ie