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Standard Operating Procedure

Adult Intradermal Testing

The following standard operating procedure outlines how to perform an intradermal test and is applicable to all health care professionals undertaking this role.

Intradermal testing (IDT) is a method used to determine the presence of specific IgE in venom and drug allergy testing [1,2,3]. IDT should only be performed and interpreted in conjunction with a clinical history as a positive IDT alone is not diagnostic of clinical disease. IDT should only be performed if skin prick testing with the venom/drugs has been performed and found to be negative or to identify cross reacting drugs (eg neuromuscular blocking agents)[1,2,3]. IDT should be performed by an appropriately trained, experienced investigator who has competence and expertise in drug allergy, understanding when IDT is likely to pose risk and that for many drugs the appropriate concentration for IDT is not established and local experience is required. They should also be trained in the recognition and treatment of anaphylaxis as IDT is associated with a higher risk of systemic reactions[2,4,5]. IDT forms part of a pathway of investigation for drug allergy where further oral/injection challenge testing may be required to complete the diagnosis[1].

Concurrent medications
As with skin prick tests, IDT reactions are inhibited by antihistamines and may be inhibited by tricyclic antidepressants, topical corticosteroids[6,7]. Therefore where possible inhibitory medication should be stopped or alternative testing methods considered. Short acting anti-histamines should be stopped for 72 hours prior to testing.

If the skin prick test to a drug is positive at an appropriate dilution, IDT is not normally required.

Cautions
Caution should be taken when considering IDT in pregnancy, for patients with unstable asthma or those taking beta blockers. There is a higher risk of severe systemic reactions with certain drugs /agents such as polyethylene glycol (PEG) or based on the patient's history and a risk assessment should be included in the planning of IDT.

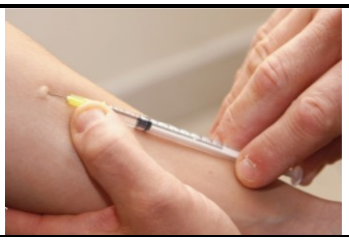
Equipment
- Saline control
- Venom or drugs diluted to non-irritant concentrations in line with Trust or published guidelines.
- Intradermal test recording sheet
- Pen
- 1.0ml syringes or insulin syringe
- 27 gauge needles

- Sharps bin
- Sterile gauze
- Ruler
- Timer / clock / watch
- Emergency equipment should be available to treat anaphylaxis, including adrenaline 1:1000 [5]

Preparation

Explain the procedure to the patient, the potential risks involved and obtain consent (verbal or written according to local policy). The procedure should be undertaken in accordance with local infection control policy using appropriate hand hygiene measures. Select an appropriate test site free from eczema / dermatitis, the preferred site is the volar aspect of the forearm but the back may also be used.

PROCEDURE [1,2,3,8,9,10]	**RATIONALE**
Test site should be hygienically clean but does not need to be not be cleaned with alcohol or antiseptic	
Ensure patient is in a comfortable position sitting or, if needle phobic, lying down. Rest arm on a level surface, using pillow if necessary.	To ensure patient is relaxed and able to remain still during the test.
Mark the test sites at a minimum of 2.5cm apart, using first letter of allergen being tested. Avoid the skin creases (elbow and wrist)	To ensure any reactions do not overlap so that accurate measurements can be made.
Include a saline normal control IDT.	To assist with interpretation of the test
Draw up the prescribed drug or venom dilution according to published non-irritant concentrations,or local guidelines, based on experience. In suspected highly sensitised individuals consideration should be given to a lower starting dose. Drugs, dilutions and expiry dates should be checked by two staff.	The concentration used depends on the agent being tested. A non-irritant concentration is used. To prevent drug errors
Use a 27 gauge needle or an insulin syringe.	To facilitate needle entry into the dermis.
Remove the needle sheath and hold syringe in the dominant hand with the bevel of the needle facing up.	To facilitate needle placement
With the non-dominant hand, stretch skin over the injection site with forefinger and thumb	To facilitate the needle piercing the skin more easily
With the needle against the patient's skin, insert the needle into the skin at an angle of 10-15^{o} and advance through the epidermis so that the needle tip bevel is just under the skin.	To ensure the needle tip is in the dermis.

Inject pre-determined volume (maximum 0.05 ml) slowly in order to raise a bleb 4-6mm in diameter on the skin surface.	
Withdraw needle and blot. Do not rub or massage the site.	
Discard syringe and needle into sharps bin	To ensure safe disposal of sharps
Draw around the bleb	To mark the initial size of the bleb and assist with interpreting the test result
Repeat the procedure for each allergen	To test other allergens
Advise patients not to scratch the test sites whilst waiting for the results to develop	To allow for accurate reading of results.
Advise patients to report promptly any systemic adverse reaction	To ensure prompt treatment of any adverse reaction
Results should be read 20 minutes after the test. Measure the bleb diameter in mm. For asymmetric blebs measure the longest diameter in mm and the diameter 90^{o} to the first measurement (eg 3x3mm). For some agents eg PEGs &colloids delayed positives may occur. For PEG and colloids also read at =/>30 minutes and observe for 1h. Record flare. An increase in wheal size of 3mm in diameter beyond the initial bleb is considered positive. The reproducibility of intradermal test can be variable and if there is diagnostic doubt consider repeating the tests in duplicate.	To ensure accurate assessment of the reaction is recorded.
A bleb that has not increased but has persisted, is itchy and has an associated flare does not meet the criteria for a positive. All tests should be interpreted by a clinician with experience in drug allergy.	
Advise the patient that the wheals will fade, usually within an hour.	To inform the patient
Topical 1% hydrocortisone, oral anti-histamines or a cold compress may be given to relieve severe itch in line with a prescription.	To enhance patient comfort and relieve severe itch
Keep patient in the clinical area for 30 min, unless PEG which requires 1 hour or the test is high risk.	
Late reading of the IDT is also performed 48-72 hours after the test if a delayed hypersensitivity reaction is suspected from the history. Patients do this at home and email photographs with a description.	Late IDT reading required in the diagnosis of non immediate hypersensitivity reactions [1,8]
Record the outcome of the test including (a proforma	Ensure accurate documentation.

is advised); • date of test • patient name, date of birth and hospital number • drugs / venom concentrations used for IDT • initial bleb size and final wheal size after 20 minutes, (with photograph if late reading required). Flare size. • any recent antihistamine medication with date/time of last dose. • name, designation and signature of person performing the IDT	

Interpreting the Intradermal Test
Ensure that the results are discussed with the patient by an appropriately trained clinician and, when applicable, avoidance advice and written information is given.

Governance
If drug allergy is diagnosed documentation should include; marking of medical, nursing and dental notes and electronic records, drug allergy notification letter to patient, copied to GP and referring doctor(s), medic alert and yellow card report to MHRA in line with NICE Clinical Guidelines 183 [(11)].

References

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