Audit of Nurse led Skin Prick Testing Clinic: Is it worthwhile?

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Background:

Skin Prick Test (SPT) detects presence of allergen specific IgE¹. Contra-indications include recent anaphylaxis, skin conditions² and certain types of medication³; some of which can also interfere with the test results. In vivo testing clinic could be expensive⁴ with adverse effects⁵.

Objectives:

To assess safety of nurse led skin prick testing

Audit Standards:

- 100% adherence to contra-indications
- No adverse outcomes
- Accurate and complete documentation
- Clinic attendance of $\geq 94\%$ with no same day cancellations

Methods:

- Retrospective audit of Skin Prick Test clinic run by ENT Nurse Practitioners of (45 +2) consecutive patients from Jul 2016 to Feb 2017
- Data taken from the ENT outpatients electronic records, clinical notes, allergy questionnaire & form
- 2 patients did not have the test – aural care & non ENT patients

Medications that can affect the test: & for how long⁶

- H1 antihistamines suppress skin reactivity for 1-7 days
 - 1st generation 1- 3days
 - 2nd generation up to 7 days
 - 3rd generation (e.g. fexofenadine, levocetirizine & desloratidine)
 - antihistamine nasal sprays & antihistamine eye drops 3 days
- H2 receptor antagonists (eg, ranitidine, cimetidine) - at least 48 hours
- Antihistamines used for nonallergic diseases, such as phenothiazine antiemetics (e.g. promethazine, prochlorperazine, alimemazine) or those for vertigo/motion sickness or insomnia (e.g. meclizine, doxylamine) may block skin reactivity for up to 2weeks
- If a patient has not withheld antihistamines for the full recommended time, interference can still be present even though the histamine reaction is positive
- Tricyclic antidepressants – 2 weeks
- Omalizumab – 6 months
- Consider RAST: Methotrexate; Beta blockers and ACE inhibitors could interfere with treatment of anaphylaxis
- Drugs that don't interfere with SPT: Inhaled, intranasal and oral glucocorticoids, SSRI, Leukotriene receptor antagonists

What we tell our patients

Nurse led SPT Clinic

- Posters in clinic remind clinicians of contra-indications to referring patients for SPT
- Patients fill a questionnaire, that confirms their medication, allergies and anaphylaxis history at appointment
- Nurse led SPT done in booked clinic and recorded on a form
- No guidelines available on the Trust intranet

Results 1: Patient Demographics

Age and Sex distribution

Results 2: Test outcomes

*2 patients fainted & SPT was abandoned

Results 3:

Allergens detected

Those who should not/ could not be tested

Results 4: Responses to patient Questionnaire & Test

- 2 patients gave no response to - 'Have you had anaphylactic shock?', 1 of whom had a history of anaphylaxis. Another with H/o anaphylaxis responded 'no' to the question
- 17 patients documented their full medication history (36%)
- 2 patients fainted after being tested for HDM, grass pollen & did not complete the test (4.25%)
- Advice following SPT: medication optimisation; allergen avoidance advice; discussion of concerns post SPT
- 6 DNA (13% did not attend), 6 had contra-indications (13%)

Summary and Conclusions

- 86.67% attendance with further 13.33% test cancellation on the day. 4.44% suffered adverse reaction. There was 97% adherence to contraindications.
- 13.33% were referred for SPT by clinicians despite displayed contra-indications of which 2.22% underwent SPT.
- Patient questionnaires are not accurately completed and can lead to administering the test to patients who should not be tested
- Growing list of drugs interfere with SPT & compliance with contra-indications is limited by human factors. 87% attendance falls short of the Trust attendance target and calculations⁴ show SPT clinic is more expensive than Antigen specific IgE test, with potential for adverse events.

Suggested changes to the Skin prick testing clinic:

- Update the Contra-indications
- Better compliance with documentation
- Focused history taking of medication & allergies before referral
- Patients should bring their Medication list
- Consider making the protocol available on the Trust intranet

References

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- Table 2: Potential interference of medications with the skin test reaction (adapted from Demoly (2003) [23]; Rueff (2010) [24] and Position Paper: Allergen standardization and skin tests: The European Academy of Allergy (1993)) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3565910/table/T2/>