Drug allergy: diagnosis and management of drug allergy in adults, children and young people

NICE guideline

Draft for consultation, April 2014

If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

Contents

Introduction

All drugs have the potential to cause side effects, also known as ‘adverse drug reactions’, but not all of these are allergic in nature. Other reactions are caused by drug intolerance, idiosyncratic reactions and pseudo-allergic reactions. The British Society for Allergy and Clinical Immunology (BSACI) defines drug allergy as an adverse drug reaction with an established immunological mechanism. The mechanism at presentation may not be apparent from the clinical history and it cannot always be established whether a drug reaction is allergic or non-allergic without investigation. Therefore, this guideline has defined drug allergy as any reaction caused by a drug with clinical features compatible with an immunological mechanism.

Hospital Episode Statistics from 1996 to 2000 reported that drug allergies and adverse drug reactions accounted for approximately 62,000 hospital admissions in England each year. There is also evidence that these reactions are increasing: between 1998 and 2005, serious adverse drug reactions rose 2.6-fold. Up to 15% of inpatients have their hospital stay prolonged as a result of an adverse drug reaction.

Almost 1 million people admitted to NHS hospitals each year have a diagnostic ‘label’ of drug allergy, with the most common being penicillin allergy. About 10% of the general population claim to have a penicillin allergy; this has often been because of a skin rash that occurred during a course of penicillin in childhood. Fewer than 10% of people who think they are allergic to penicillin are truly allergic. Therefore, penicillin allergy can potentially be excluded in 9% of the population.

Hypersensitivity to non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, diclofenac, naproxen and aspirin, is common. In particular, it affects 5–10% of people who have asthma. In these people, fatal reactions can occur with small doses of NSAIDs. One-third of people with chronic urticaria have severe reactions to NSAIDs, involving angioedema and anaphylaxis.

Anaphylaxis-type reactions occur in approximately 1 in 1,000 of the general population. Anaphylaxis during general anaesthesia occurs in between 1 in 10,000–20,000 anaesthetics. These patients may be denied general anaesthesia in the future unless a safe combination of drugs can be identified.

Major issues identified by this guideline include poor clinical documentation of drug allergy and a lack of patient information. Computerised primary care record systems are often unable to distinguish between intolerance and drug allergy and this can lead to a false label of drug allergy, particularly if the person's reaction took place many years previously and details about their reaction have been lost. Furthermore, there is no routine system in place for people to keep a record of their own drug allergies. This can lead to confusion over which drugs can be taken safely and can result in people inadvertently taking a drug they are allergic to, particularly when buying over-the-counter drugs from a pharmacy.

Analysis of patient safety incidents reported to the National Reporting and Learning System between 2005 and 2013 identified 18,079 incidents involving drug allergy. These included 6 deaths, 19 'severe harms', 4,980 'other harms' and 13,071 'near-misses'. The majority of these incidents involved a drug that was prescribed, dispensed or administered to a patient with a previously known allergy to that drug or drug class.

Diagnosing drug allergy can be challenging and there is considerable variation both in how drug allergy is managed and in geographical access to treatment. This can lead to under diagnosis, misdiagnosis and self-diagnosis. This variation may be caused by insufficient awareness of available services or by a lack of local provision of drug allergy centres. Some people are never offered referral to specialist services and instead stay in primary care while others have their drug allergy managed in other disciplines. Therefore, only a small proportion of people are treated in specialist allergy centres.

In view of the variation in provision of care for people with drug allergy, the scope of this guideline identified a need for guidance to improve clinical management for people affected by drug allergy. This guideline has been

developed for use by healthcare professionals at all levels of healthcare and offers best practice advice on the diagnosis, documentation and communication of drug allergy in adults, children and young people.

Drug recommendations

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

Patient-centred care

This guideline offers best practice advice on the care of adults, children and young people with suspected or confirmed drug allergy.

Patients and healthcare professionals have rights and responsibilities as set out in the NHS Constitution for England – all NICE guidance is written to reflect these. Treatment and care should take into account individual needs and preferences. Patients should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If the patient is under 16, their family or carers should also be given information and support to help the child or young person to make decisions about their treatment. Healthcare professionals should follow the Department of Health's advice on consent (or, in Wales, advice on consent from the Welsh Government). If someone does not have capacity to make decisions, healthcare professionals should follow the code of practice that accompanies the Mental Capacity Act and the supplementary code of practice on deprivation of liberty safeguards.

NICE has produced guidance on the components of good patient experience in adult NHS services. All healthcare professionals should follow the recommendations in Patient experience in adult NHS services.

If a young person is moving between paediatric and adult services, care should be planned and managed according to the best practice guidance described in the Department of Health's Transition: getting it right for young people.

Adult and paediatric healthcare teams should work jointly to provide assessment and services to young people with drug allergies. Diagnosis and management should be reviewed throughout the transition process, and there should be clarity about who is the lead clinician to ensure continuity of care.

Strength of recommendations

Some recommendations can be made with more certainty than others. The Guideline Development Group makes a recommendation based on the trade-off between the benefits and harms of an intervention, taking into account the quality of the underpinning evidence. For some interventions, the Guideline Development Group is confident that, given the information it has looked at, most patients would choose the intervention. The wording used in the recommendations in this guideline denotes the certainty with which the recommendation is made (the strength of the recommendation).

For all recommendations, NICE expects that there is discussion with the patient about the risks and benefits of the interventions, and their values and preferences. This discussion aims to help them to reach a fully informed decision (see also ‘Patient-centred care’).

Interventions that must (or must not) be used

We usually use ‘must’ or ‘must not’ only if there is a legal duty to apply the recommendation. Occasionally we use ‘must’ (or ‘must not’) if the consequences of not following the recommendation could be extremely serious or potentially life threatening.

Interventions that should (or should not) be used – a ‘strong’ recommendation

We use ‘offer’ (and similar words such as ‘refer’ or ‘advise’) when we are confident that, for the vast majority of patients, an intervention will do more good than harm, and be cost effective. We use similar forms of words (for example, ‘Do not offer…’) when we are confident that an intervention will not be of benefit for most patients.

Interventions that could be used

We use ‘consider’ when we are confident that an intervention will do more good than harm for most patients, and be cost effective, but other options may be similarly cost effective. The choice of intervention, and whether or not to have the intervention at all, is more likely to depend on the patient’s values

and preferences than for a strong recommendation, and so the healthcare professional should spend more time considering and discussing the options with the patient.

Key priorities for implementation

The following recommendations have been identified as priorities for implementation. The full list of recommendations is in Section 1.

Assessment

- When assessing a person presenting with possible drug allergy, take a history and undertake a clinical examination. Use the following tables as a guide when deciding whether to suspect drug allergy.

Tables 1–3 Signs and allergic patterns of suspected drug allergy with timing of onset after exposure to drug[1]

1 Immediate, rapidly evolving reactions

Anaphylaxis – a severe multi-system reaction usually with erythema, urticaria or angioedema in combination with hypotension and/or bronchospasm	Onset usually under 1 hour, previous exposure not always confirmed
Urticaria or angioedema without systemic features	
Exacerbation of asthma, for example with non-steroidal anti-inflammatory drugs (NSAIDs)	

2 Non-immediate reactions without systemic involvement

Widespread red macules or papules (exanthem-like)	Onset usually on day 6–10 of first drug exposure (reaction to first exposure may be more prolonged), or day 1–3 of second exposure
Fixed drug eruption (localised inflamed skin)	

3 Non-immediate reactions with systemic involvement

Widespread red macules, papules or erythroderma with systemic involvement. For example, drug reaction with eosinophilia and systemic symptoms (DRESS) or drug hypersensitivity syndrome (DHS) – characterised by fever, lymphadenopathy, liver dysfunction and low platelets	Onset usually 2–6 weeks after first drug exposure, or 24–48 hours after second exposure
Toxic epidermal necrolysis or Stevens–Johnson syndrome –	Onset usually 7–14 days after first drug exposure, or

[1] Note that these tables describe common and important presenting features of drug allergy but other presentations are also recognised

characterised by mucosal or cutaneous erosions, vesicles, blistering or epidermal detachment, and red purpuric macules or erythema multiforme. Painful rash and fever are often early signs	24–48 hours after second exposure
Acute generalised exanthematous pustulosis – widespread pustules, usually with a fever and neutrophilia	Onset 3–5 days after first drug exposure
Common disorders caused, rarely, by drug allergy: • eczema • hepatitis • photosensitivity • vasculitis	Time of onset variable

[1.1.1]

Documenting and sharing information with other healthcare professionals

Documenting new suspected drug allergic reactions

- When a person presents with suspected drug allergy, document their reaction in a structured approach that includes:
  - the generic and proprietary name of the drug taken
  - a description of the reaction (see recommendation 1.1.1)
  - the indication for the drug being taken (if there is no clinical diagnosis, describe the illness)
  - date and time of the reaction
  - the number of doses taken or number of days on the drug before onset of the reaction
  - the route of administration
  - which drug or drug classes to avoid in future. **[1.2.3]**

Maintaining and sharing drug allergy information

- Check and update a person's documented drug allergy status and confirm it with the person (or their parents or carers if appropriate) before prescribing, dispensing or administering any drug. **[1.2.6]**
- Ensure that information about drug allergy status is included in all:
  - GP referral letters
  - hospital discharge letters
  - prescriptions issued in any healthcare setting. **[1.2.8]**

Providing information and support to patients

- Discuss the person's suspected drug allergy with them, and their parents or carers if appropriate, and provide written information (see recommendation 1.2.1). Record the name of the clinician and the date the information was given. **[1.3.1]**
- Ensure that the person (and their parents or carers if appropriate) is aware of the drug or drug classes that they need to avoid, and advise them to check with a pharmacist before taking any over-the-counter drugs. **[1.3.2]**
- Allergy specialists should give the following written information to people who have undergone specialist drug allergy investigation:
  - the diagnosis – whether they had an allergic or non-allergic reaction
  - the drug name and a description of their reaction
  - the investigations used to confirm or exclude the diagnosis
  - drugs to avoid in future
  - any safe alternative drugs that may be used. **[1.3.4]**

Non-specialist management and referral to specialist services

General

- Refer to a specialist drug allergy service people who have had:
  - a suspected anaphylactic reaction (also see Anaphylaxis, NICE clinical guideline 134) **or**

  - a severe non-immediate cutaneous reaction (for example, drug reaction with eosinophilia and systemic symptoms [DRESS], Stevens–Johnson Syndrome, toxic epidermal necrolysis). **[1.4.2]**

Beta lactam antibiotics

- Refer to a specialist drug allergy service people with a suspected allergy to beta-lactam antibiotics who:
  - need treatment for a disease that can only be treated by a beta-lactam antibiotic **or**
  - have a high likelihood of frequent future need for beta-lactam antibiotics, for example, people with recurrent bacterial infections or immune deficiency. **[1.4.8]**

General anaesthesia

- Refer to a specialist drug allergy service people who have had a suspected allergic reaction or anaphylaxis during or immediately after general anaesthesia. **[1.4.11]**

1 Recommendations

The following guidance is based on the best available evidence. The full guideline [hyperlink to be added for final publication] gives details of the methods and the evidence used to develop the guidance.

All recommendations apply to adults, children and young people.

1.1 Assessment

1.1.1 When assessing a person presenting with possible drug allergy, take a history and undertake a clinical examination. Use the following tables as a guide when deciding whether to suspect drug allergy.

Tables 1–3 Signs and allergic patterns of suspected drug allergy with timing of onset after exposure to drug[2]

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Exacerbation of asthma, for example with non-steroidal anti-inflammatory drugs (NSAIDs)	

2 Non-immediate reactions without systemic involvement

Widespread red macules or papules (exanthem-like)	Onset usually on day 6–10 of first drug exposure (reaction to first exposure may be more prolonged), or day 1–3 of second exposure
Fixed drug eruption (localised inflamed skin)	

[2] Note that these tables describe common and important presenting features of drug allergy but other presentations are also recognised

3 Non-immediate reactions with systemic involvement

Widespread red macules, papules or erythroderma with systemic involvement. For example, drug reaction with eosinophilia and systemic symptoms (DRESS) or drug hypersensitivity syndrome (DHS) – characterised by fever, lymphadenopathy, liver dysfunction and low platelets	Onset usually 2–6 weeks after first drug exposure, or 24–48 hours after second exposure
Toxic epidermal necrolysis or Stevens–Johnson syndrome – characterised by mucosal or cutaneous erosions, vesicles, blistering or epidermal detachment, and red purpuric macules or erythema multiforme. Painful rash and fever are often early signs	Onset usually 7–14 days after first drug exposure, or 24–48 hours after second exposure
Acute generalised exanthematous pustulosis – widespread pustules, usually with a fever and neutrophilia	Onset 3–5 days after first drug exposure
Common disorders caused, rarely, by drug allergy: • eczema • hepatitis • photosensitivity • vasculitis	Time of onset variable

1.1.2 Be aware that the reaction is more likely to be caused by drug allergy if it occurred during or after use of the drug and:

- the drug is known to cause that type of reaction **or**
- the person has had a similar reaction to that drug or class of drug in a previous exposure.

1.1.3 Be aware that the reaction is less likely to be caused by drug allergy if:

- there is a possible non-drug cause for the person's symptoms, for example, they have had similar symptoms when not taking the drug, **or**
- the person has gastrointestinal symptoms only.

Measuring serum tryptase after suspected anaphylaxis

1.1.4 After a suspected drug-related anaphylactic reaction, take blood samples for mast cell tryptase in line with recommendations in Anaphylaxis (NICE clinical guideline 134).

1.1.5 Record in the person's notes and on the pathology request form, the exact timing of both blood samples taken for mast cell tryptase after onset of suspected anaphylaxis.

1.1.6 Ensure that tryptase sampling tubes are included in emergency anaphylaxis kits.

Measuring serum specific immunoglobulin E (IgE)

1.1.7 Do not use blood testing for specific IgE for diagnosing drug allergy in a non-specialist setting.

1.2 Documenting and sharing information with other healthcare professionals

Recording drug allergy status

1.2.1 Healthcare professionals should document people's drug allergy status in their healthcare records using 1 of the following:

- 'drug allergy'
- 'none known'
- 'unable to ascertain' (document it as soon as the information is available).

1.2.2 When documenting suspected or confirmed drug allergy status in routine care, record all of the following at a minimum:

- drug name
- nature of reaction
- the date when the reaction occurred.

Documenting new suspected drug allergic reactions

1.2.3 When a person presents with suspected drug allergy, document their reaction in a structured approach that includes:

- the generic and proprietary name of the drug taken
- a description of the reaction (see recommendation 1.1.1)
- the indication for the drug being taken (if there is no clinical diagnosis, describe the illness)
- date and time of the reaction
- the number of doses taken or number of days on the drug before onset of the reaction
- the route of administration
- which drug or drug classes to avoid in future.

Maintaining and sharing drug allergy information

1.2.4 Ensure that drug allergy status is documented separately from adverse drug reactions and that it is clearly visible to all healthcare professionals who are prescribing, administering and dispensing drugs.

1.2.5 Check drug allergy status and update, if needed, at every contact with the patient.

1.2.6 Check and update a person's documented drug allergy status and confirm it with the person (or their parents or carers if appropriate) before prescribing, dispensing or administering any drug.

1.2.7 Carry out medicines reconciliation for people admitted to hospital in line with recommendations in Technical patient safety solutions for medicines reconciliation on admission of adults to hospital (NICE patient safety solutions 1).

1.2.8 Ensure that information about drug allergy status is included in all:

- GP referral letters
- hospital discharge letters

- prescriptions issued in any healthcare setting.

After specialist drug allergy investigations

For recommendations on referral to specialist services see section 1.4.

1.2.9 After specialist drug allergy investigations, allergy specialists should document:

- the diagnosis – whether the person had an allergic or non-allergic reaction
- the investigations used to confirm or exclude the diagnosis
- drug or drug classes to avoid in future.

1.3 Providing information and support to patients

1.3.1 Discuss the person's suspected drug allergy with them, and their parents or carers if appropriate, and provide written information (see recommendation 1.2.3). Record the name of the clinician and the date the information was given.

1.3.2 Ensure that the person (and their parents or carers if appropriate) is aware of the drug or drug classes that they need to avoid, and advise them to check with a pharmacist before taking any over-the-counter drugs.

1.3.3 Advise people (and their parents or carers if appropriate) to carry information they are given about their drug allergy at all times and to share this whenever they visit a healthcare professional or are prescribed, dispensed or are about to be administered a new drug.

1.3.4 Allergy specialists should give the following written information to people who have undergone specialist drug allergy investigation:

- the diagnosis – whether they had an allergic or non-allergic reaction
- the drug name and a description of their reaction
- the investigations used to confirm or exclude the diagnosis

- drugs to avoid in future
- any safe alternative drugs that may be used.

1.3.5 Inform people in whom allergy to a drug or drug class has been excluded by specialist investigation that they can now take this drug or drug class safely.

1.3.6 Provide information in line with the recommendations in Patient experience in adult NHS services (NICE clinical guidance 138).

1.4 Non-specialist management and referral to specialist services

General

1.4.1 If drug allergy is suspected:

- consider stopping the drug suspected to have caused the allergic reaction and advise the person to avoid that drug in future
- treat the symptoms arising from the acute reaction if needed; send people with severe reactions to hospital
- document details of the suspected drug allergy in the person's medical records (see recommendation 1.2.3)
- provide information to the person (see section 1.3).

1.4.2 Refer to a specialist drug allergy service people who have had:

- a suspected anaphylactic reaction (also see Anaphylaxis, NICE clinical guideline 134) **or**
- a severe non-immediate cutaneous reaction (for example, drug reaction with eosinophilia and systemic symptoms [DRESS], Stevens–Johnson Syndrome, toxic epidermal necrolysis).

Non-steroidal anti-inflammatory drugs (including selective cyclooxygenase 2 inhibitors)

1.4.3 Inform people with a suspected allergy to a non-selective non-steroidal anti-inflammatory drug (NSAID) (and their parents or carers if appropriate) that in future they need to avoid all other non-selective NSAIDs, including over-the-counter preparations.

1.4.4 Consider a selective cyclooxygenase 2 (COX-2) inhibitor for people who have had mild reactions to a non-selective NSAID if an anti-inflammatory is needed. Discuss the benefits and low risk of introducing a selective COX-2 inhibitor, and then offer the lowest starting dose and only give a single dose on the first day.

1.4.5 Do not offer a selective COX-2 inhibitor in a non-specialist setting to people who have had severe reactions, such as anaphylaxis, severe angioedema or asthmatic reactions, to non-selective NSAIDs.

1.4.6 Refer to a specialist drug allergy service people who have had suspected allergic reactions to NSAIDs with symptoms such as severe angioedema or asthmatic reactions but who need treatment with an NSAID.

1.4.7 Be aware that people with asthma who also have nasal polyps are likely to have NSAID-sensitive asthma unless they are known to have tolerated NSAIDs in the last 12 months.

Beta-lactam antibiotics

1.4.8 Refer to a specialist drug allergy service people with a suspected allergy to beta-lactam antibiotics who:

- need treatment for a disease that can only be treated by a beta-lactam antibiotic **or**
- have a high likelihood of frequent future need for beta-lactam antibiotics, for example, people with recurrent bacterial infections or immune deficiency.

1.4.9 Consider referring to a specialist drug allergy service people who are not able to take beta-lactam antibiotics and at least 1 other class of antibiotic because of suspected allergy to these antibiotics.

Local anaesthetics

1.4.10 Refer to a specialist drug allergy service people who need procedures involving local anaesthetics but are unable to have them because of previous suspected allergic reactions to local anaesthetics.

General anaesthesia

1.4.11 Refer to a specialist drug allergy service people who have had a suspected allergic reaction or anaphylaxis during or immediately after general anaesthesia.

2 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline.

2.1 Designing systems for documenting drug allergy

Which documentation strategies would be most clinically and cost effective to minimise the number of people who are re-exposed to drugs to which they have a suspected or confirmed allergy, looking in particular at:

- electronic health records that include features specifically designed to record and alert clinicians to drug allergy information, compared with systems without such features, and
- different formats for patient-held, structured drug allergy documentation?

Why is this important?

Evidence from patient safety incident reports to the National Reporting and Learning System and from published research shows that a large number of NHS patients with known drug allergies are being re-exposed to these drugs

in error each year. Over the past few decades, many people have been inaccurately diagnosed and recorded as either having or not having a drug allergy. While re-exposure to a drug has not caused harm in the majority of people, a minority of these incidents have caused harm or death.

The systematic review undertaken for this guideline identified a wide range of documentation strategies, including patient-held records; information worn by patients; hospital-based notices worn by patients (such as coloured arm bands); automated messages (for example, screen savers); mandatory reporting of drug allergy status in paper or electronic medication records; mandatory documentation of details related to adverse drug reactions; design of drug charts; use of Summary of Care Records; and computerised physician or prescriber order entry systems (CPOE).

Most of the studies included in the systematic review were from the USA and their focus was largely on adverse drug events or medication prescribing errors, and not specifically on drug allergy. In addition, few studies assessed the effectiveness of patient-held documentation strategies. The quality of the evidence from studies was generally very low. Research is therefore needed to determine which strategy or combination of strategies is most effective in reducing harm by minimising accidental re-exposure to a known drug allergen.

2.2 Communicating information about drug allergy

In people with suspected or confirmed drug allergies, are patient-focused information strategies more effective than standard NHS practice in increasing people's likelihood of disclosing their drug allergy (or their suspected drug allergy) and therefore reducing the risk of being re-exposed to the affected drug?

Why is this important?

Administering drugs to which patients have a reported allergy can be fatal, but inadvertent prescription or administration of such drugs is common. Data from the UK General Practice Research Database indicate that the incidence of contraindicated antibiotics being re-prescribed to patients with suspected penicillin allergy is as high as 48.5%, suggesting that even electronic systems

with reminders do not eliminate the risk of inappropriate prescribing. Also, few allergy documentation systems communicate across healthcare organisations, so this information may be lost when patients move to new areas.

Patients and their families and carers have been identified as a resource to prevent inappropriate prescribing. This is in line with the concept of 'patient responsibility' described in the NHS Constitution (2010). Patients and their families and carers are encouraged to be involved in decisions about their care and this includes decisions about drug choice. However, in current practice information is usually not provided unless drug allergy is confirmed by specialists. Suitable information provision is important to encourage people to volunteer their allergy status (be it suspected or confirmed) and make sure that this is appropriately documented by healthcare professionals.

The British Society for Allergy and Clinical Immunology (BASCI) recommends giving patients written details about their allergy, including information on drugs they should avoid. However, it is unclear what factors influence patients to disclose their allergy status to healthcare professionals and what would empower them to do so, to improve safety.

Research is therefore needed to determine which information strategy would be most effective (and preferred by patients) to:

- increase patients' knowledge about their allergy and ability to remember this information
- increase patient empowerment and confidence to discuss their drug allergy with healthcare professionals
- minimise harm from inadvertent re-exposure to a suspected drug allergen.

2.3 Using selective cyclooxygenase 2 inhibitors in people with previous severe allergic reactions to non-selective non-steroidal anti-inflammatory drugs

Should all patients who have experienced a severe allergic reaction to a non-selective non-steroidal anti-inflammatory drug (NSAID) be assessed by

specialist drug allergy services or should they be advised to take a selective cyclooxygenase 2 (COX-2) inhibitor without further investigations?

Why is this important?

There are 5.4 million people with asthma in the UK, 1–5% of whom are unable to take non-selective NSAIDs without developing a severe and sometimes life-threatening asthma attack. In addition, 0.1–1% of the general population report allergic reactions to NSAIDs with symptoms ranging from urticaria and angioedema to anaphylaxis. NSAIDs are extremely widely used, are available over the counter and are present within many compound preparations, for example cold and flu remedies. People who are allergic to NSAIDs are therefore at risk of inadvertent exposure and this presents a significant public health issue.

Commonly encountered NSAIDs such as aspirin, ibuprofen, diclofenac and naproxen are non-selective COX-2 inhibitors which block the enzymatic effects of both cyclooxygenase 1 (COX-1) and COX-2. More recently introduced NSAIDs include a group which are selective inhibitors of the COX-2 isoform alone. Studies have shown that the allergic response to NSAIDs is mediated through inhibition of COX-1 and therefore the majority of people with a history of allergic reactions to non-selective NSAIDs are able to tolerate selective COX-2 inhibitors. However, the same studies have also reported that a small proportion of these people also react adversely to selective COX-2 inhibitors. This group has not been properly characterised and therefore it is not possible to predict who should be offered a selective COX-2 inhibitor without undertaking specialist drug allergy investigations. This clinical guideline recommends that people with a history of mild reactions should be offered a selective COX-2 inhibitor but that all those with severe or asthmatic reactions be referred to specialist drug allergy services for investigation before they can be offered treatment.

Well-designed, appropriately powered, controlled studies characterising people with a history of severe and asthmatic reactions to non-selective NSAIDs may enable them to have treatment with an anti-inflammatory without specialist drug allergy investigation.

2.4 Oral antibiotic challenge for diagnosing antibiotic allergy in children

In children who have a suspected allergy to an antibiotic, is it clinically and cost effective to proceed directly (without prior skin or intra-dermal tests) to a diagnostic oral antibiotic challenge rather than refer to specialist drug allergy services?

Why is this important?

Antibiotics are an important class of drug and one of the most common groups of drugs prescribed to children. Many childhood illnesses are associated with skin rashes, and it can be clinically difficult in the acute setting to be certain if an atypical rash is caused by the underlying illness, the antibiotic, or both. Adverse drug reactions to antibiotics are common and frequently result in a child being diagnosed with 'drug allergy', a diagnosis which generally remains for life.

Current clinical experience suggests that most patients in a community setting who are believed to be allergic to an oral antibiotic (approximately 3% for children, 10–20% for adults) will be challenge 'negative' – that is, they are able to tolerate the oral antibiotic on the day of the challenge and on subsequent days. While patients who are correctly diagnosed with an allergy are kept safe through avoidance, there are health and cost implications for patients who are incorrectly diagnosed with an antibiotic allergy.

The evidence review for this clinical guideline found no evidence to support the reliability of allergy testing (skin, intradermal or IgE determination) for the diagnosis of antibiotic allergy in children. In addition, these tests are painful and restricted to only a few specialist centres in the UK. The result is that only a small fraction of children in the UK with a diagnosis of antibiotic allergy ever undergo investigations to confirm or exclude this diagnostic 'label'. It would therefore be beneficial to prospectively investigate the use of the oral supervised challenge in a safe clinical setting without prior allergy testing. This novel diagnostic approach could be compared with an intervention of 'antibiotic avoidance'.

If the oral antibiotic challenge is found to be safe, acceptable and cost effective, it could be rolled out across all centres that offer paediatric allergy services. This would reduce substantially the number of children who receive a lifelong label of antibiotic allergy.

3 Other information

3.1 Scope and how this guideline was developed

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover.

How this guideline was developed

NICE commissioned the National Clinical Guideline Centre to develop this guideline. The Centre established a Guideline Development Group (see Section 4), which reviewed the evidence and developed the recommendations.

The methods and processes for developing NICE clinical guidelines are described in The guidelines manual.

3.2 Related NICE guidance

Details are correct at the time of consultation on the guideline (April 2014). Further information is available on the NICE website.

Published

General

- Patient experience in adult NHS services. NICE clinical guideline 138 (2012).
- Medicines adherence. NICE clinical guideline 76 (2009).
- Technical patient safety solutions for medicines reconciliation on admission of adults to hospital. Patient safety solutions pilot 1 (2007).

Condition-specific

- Anaphylaxis. NICE clinical guideline 134 (2011).

Under development

NICE is developing the following guidance (details available from the NICE website):

- Medicines optimisation. NICE clinical guideline. Publication expected February 2015.

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