GUIDELINES

Assessment and referral after emergency treatment of a suspected anaphylactic episode: summary of NICE guidance

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Anaphylaxis is a severe, life threatening, generalised or systemic hypersensitivity reaction. It is characterised by rapidly developing, life threatening problems involving the airway (pharyngeal or laryngeal oedema) and/or breathing (bronchospasm with tachypnoea) and/or circulation (hypotension and/or tachycardia). In most cases, there are associated skin and mucosal changes.1 UK estimates suggest that about 1 in 1333 of the population in England has experienced anaphylaxis.2 A common trigger of anaphylaxis in children is food and in older people is medication.3 About 20 deaths from anaphylaxis are reported each year in the United Kingdom, of which about half are known to be iatrogenic,4 although this may be a substantial underestimate. This article summarises the most recent recommendations from the National Institute for Health and Clinical Excellence (NICE) on assessment to confirm an anaphylactic reaction and on the decision to refer a patient after emergency treatment for a suspected anaphylactic reaction.5

Recommendations

NICE recommendations are based on systematic reviews of the best available evidence and explicit consideration of cost-effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group’s experience and opinion of what constitutes good practice. Evidence levels for the recommendations are in the full version of this article on bmj.com.

Duration of observation after suspected anaphylactic reaction

- Observe adults and young people aged 16 years or older who have had emergency treatment for suspected anaphylaxis for 6-12 hours from the onset of symptoms, depending on their response to emergency treatment. (The main purpose of observation is to detect potential biphasic reactions and monitor response to treatment while the individual is in hospital.) In patients with reactions that are controlled promptly and easily, a shorter observation period may be considered provided that they receive appropriate care before discharge.
- Admit children younger than 16 years who have had emergency treatment for suspected anaphylaxis to hospital under the care of a paediatric medical team.

Use and timing of mast cell tryptase testing in diagnosis of anaphylaxis

Raised levels of mast cell tryptase may help to distinguish anaphylactic reactions from other systemic conditions.
- After a suspected anaphylactic reaction in adults or young people aged 16 years or older, take timed blood samples for mast cell tryptase testing as follows:
  - A sample as soon as possible after emergency treatment has started
  - A second sample ideally within one to two hours (but no later than four hours) from the onset of symptoms.

Assessment and decision to refer after suspected anaphylactic reaction

- Document the acute clinical features of the suspected anaphylactic reaction: rapidly developing, life threatening problems involving the airway (pharyngeal or laryngeal oedema) and/or breathing (bronchospasm with tachypnoea) and/or circulation (hypotension and/or tachycardia) and, in most cases, associated skin and mucosal changes.
- Record the time of onset of the reaction.
- Record the circumstances immediately before the onset of symptoms to help to identify the possible trigger.
- After emergency treatment for suspected anaphylaxis, offer people a referral to a specialist allergy service (appropriate for age where possible) that has healthcare professionals with the skills and competencies necessary to accurately investigate, diagnose, monitor, and provide ongoing management and patient information on suspected anaphylaxis.
- After emergency treatment for suspected anaphylaxis, offer people (or, as appropriate, the parent and/or carer) an appropriate adrenaline injector as an interim measure before the specialist allergy service appointment.

Information for patients after suspected anaphylactic reaction

- Before discharge, a healthcare professional with the appropriate skills and competencies should offer people (or the parent and/or carer) the following:
  - Information about anaphylaxis, including the signs and symptoms of an anaphylactic reaction.

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- Longer term management of self harm (BMJ 2011;343:d7073)
- Diagnosis and management of colorectal cancer (BMJ 2011;343:d6751)
- Hyperglycaemia in acute coronary syndromes (BMJ 2011;343:d6646)
- Recognising and diagnosing autism in children and young people (BMJ 2011;343:d6360)
EASILY MISSED?

Femoral hernias

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An overweight 65 year old woman visits her general practitioner with discomfort in her right groin. On examination, the suggestion of a reducible groin lump is noted. She is routinely referred to the surgical outpatient clinic with a possible diagnosis of inguinal hernia. However, two weeks later and before her surgical appointment, she again visits her general practitioner, this time with vomiting, diarrhoea, and colicky abdominal pain. She is immediately referred to the emergency department. An abdominal radiograph shows small bowel obstruction. She is admitted to the surgical ward with a diagnosis of obstructed femoral hernia and has a small bowel resection and emergency hernia repair.

What is a femoral hernia?
A femoral hernia is the protrusion of a peritoneal sac through the femoral ring into the femoral canal, posterior and inferior to the inguinal ligament. The sac may contain preperitoneal fat, omentum, small bowel, or other structures.

Why is a femoral hernia missed?
Evidence is scarce as to the reason why femoral hernias are often missed and present as emergencies. Patients may be aware of groin discomfort or a groin lump, but they may not realise its clinical importance and may be reluctant to seek medical help. Initially some patients present to primary care with vague symptoms including groin discomfort that may be attributed to other disease such as osteoarthritis. As femoral hernias are typically small, they may be easily missed on examination, particularly in obese patients.
Inguinal hernias are usually reducible and above the inguinal ligament. Femoral hernias are often irreducible and below the inguinal ligament. Adapted with permission from Ellis H. Clinical anatomy. 6th ed. Blackwell Scientific, 1977.

Furthermore, owing to the difficulty in clinically distinguishing groin hernias, femoral hernias may be mistaken for inguinal hernias and referred for surgical opinion on a non-urgent basis.1

In an emergency, patients may present with signs of bowel obstruction, which include colicky abdominal pain, vomiting, and abdominal distension. About a third of patients do not complain of symptoms directly attributable to a hernia,4 and a groin lump is not always present. Other diagnoses, such as gastroenteritis, enlarged groin lymph node, diverticulitis, or constipation, may be made in error.

Retrospective studies have observed that about 40% of hernias causing symptoms of acute bowel obstruction are missed owing to a lack of groin examination.5 6 The researchers concluded that female patients and all patients with femoral hernia were less likely to have a groin examination, despite signs of bowel obstruction being noted.7

Why does this matter?

Although femoral hernias are less common than inguinal, they are associated with higher rates of acute complication. The cumulative probability of strangulation for femoral hernias is 22% three months after diagnosis, rising to 45% 21 months after diagnosis, whereas the probability of strangulation for an inguinal hernia is 3% and 4.5% respectively over the same time period.7

Several studies have shown that acute femoral hernias and their subsequent complications are associated with increased morbidity and mortality.1 2 8–10 Examples of morbidity resulting from acute presentation include increased rates of bowel resection, wound infection, and cardiovascular and respiratory complications.10 As elective femoral hernia repair has been shown to be a relatively safe procedure (even in patients aged over 80), it is generally accepted that femoral hernias should be referred urgently and repaired electively.2 8–10

Missed femoral hernia at emergency presentation delays time to surgery.7 One study has shown an increased likelihood of bowel resection if surgery is undertaken more than 12 hours after the onset of acute symptoms.11 Preoperative delay is clearly linked with an increase in bowel resection, and this is associated with mortality rates that are about 20 times higher than those for patients having elective hernia repair (which would not require a bowel resection).2

How is it diagnosed?

Clinical

Classically, femoral hernias present as mildly painful, non-reducible groin lumps, located inferolateral to the pubic tubercle. In contrast, inguinal hernias are found superomedially. However, femoral hernias tend to move superiorly to a position above the inguinal ligament, where they may be mistaken for an inguinal hernia. Differentiation of groin hernias on clinical grounds is therefore unreliable, irrespective of the experience of the examining doctor.14 In patients presenting electively, only about 1% of groin hernias in males are likely to be femoral, whereas the likelihood in females is about 20%.13 Clinical examination alone is inaccurate in differentiating groin hernia.14 Therefore in females, owing to the greater prevalence of femoral hernia, consider all groin hernia to be femoral until proved otherwise.

Femoral hernias may also present without a palpable lump and with only vague symptoms of abdominal or groin pain. However, symptoms may vary and there is a lack of evidence to predict the likelihood of a particular symptom indicating the presence of a femoral hernia. Patients may present later with clinical features of bowel obstruction. Undertake a detailed groin examination in all patients presenting with bowel obstruction.

Investigations

Ultrasoundography, magnetic resonance imaging, and computed tomography (CT) have all been shown to be accurate in detecting and differentiating groin hernias. Ultrasoundography is widely available, non-invasive, and highly accurate in differentiating inguinal from femoral hernia—with sensitivities and specificity of 100% being reported in two studies.15 16 Its accuracy is, however, operator dependent.

Magnetic resonance imaging has been reported to be more accurate than ultrasoundography in detecting inguinal hernia.17 However, there is a lack of evidence for whether magnetic resonance imaging is better than ultrasoundography in detecting and differentiating groin hernia. Therefore ultrasoundography should be the first choice for electively investigating suspected groin hernia as it is more widely available, less costly, and accurate.

CT scanning has been shown to be accurate in differentiating groin hernias. One retrospective study reports the correct identification of 74 of 75 hernias (28 femoral and 47 inguinal), which were later confirmed at operation.18 This is broadly comparable with the non-invasive modalities outlined above, but as there is a substantial radiation dose associated with CT scanning, it should not be used electively for investigating suspected groin hernia. In the acute abdomen, however, consider CT as the first choice for investigating suspected small bowel obstruction in the presence of a negative clinical examination.
How is it managed?
In males, a groin hernia suspected as being femoral on clinical examination requires urgent referral, due to the risks of acute complications outlined above. All groin hernias in females should be urgently referred for assessment.

Electively, both open and laparoscopic repair using mesh have significantly lower recurrence rates than repair using sutures only.² Open repair has the advantage that it can be performed under local anaesthetic. No evidence suggests superiority of either method in the acute setting.

Some research has suggested that femoral hernias may be overlooked during repair of suspected inguinal hernias.³ So during surgical repair of all groin hernias examine the femoral canal if an obvious inguinal hernia is not observed.

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WHEN I USE A WORD
Twice blessed

Reading the obituaries of Baruj Benacerraf (for example, BMJ 2011;343:d5298), a Venezuelan of Jewish descent who won the 1980 Nobel prize for describing “genetically determined structures of the cell surface that regulate immunological reactions” (as the citation put it), I reflected that Baruj was a Spanish form of Baruch, a Hebrew word meaning blessed. Other similarly beatified Nobel prizewinners are or were Baruch (“Barry”) Blumberg and (from an Arabic triliteral root cognate with Baruch) Barack Obama. Benacerraf is a patronymic (Greek πατήρ, patēr, “father,” Arabic ibn, “son of,” and a surname, the first name plus the surname, the first name + the surname, the first name plus “of,” with Arabic cognates ibn and bin and Aramaic bar (as in St Bartholomew and Barthelel). In Slavonic languages, –ovich also means “of,” with variants –owicz (Polish), –ović (Croatian), and –ovici (Rumanian). Russians have a first name, a patronymic, and a surname. Understanding the dramatis personae in Russian novels can be hard for Western readers, because the characters are often called by different names—the surname, the first name plus the surname, the first name plus the patronymic, or a diminutive pet name.

The patronymic –ovich can be shortened to –ov or –ich. Korotkov comes from Kortogya (“Shorty”), Korsakov from Korsak (“Foxy”), and Pavlov from Paul. Ivan Illich, author of the diatribe Medical Nemesis and inventor of the concept of medicalisation,¹ was probably descended from someone called Ilya (Elias).

Benacerraf is a patronymic, and Acerraf looks like one too, but it may be from Acero (Spanish for steel), someone who makes swords or is inflexible. But perhaps it is a corruption of Asherov, the son of Asher (Hebrew, fortunate or blessed). If that is so, Baruj Benacerraf’s name brands him as twice blessed. No wonder he won the Nobel prize.

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