

Table 1

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Walker S <i>et al</i> , 1992, Germany	50 episodes of endoscopically proven bleeding oesophageal varices in 33 patients	Double blinded randomised controlled trial	Cessation of active bleeding for 24 hours within 24 hours of randomisation	22/25 patients (80%) with terlipressin ceased bleeding whereas 19/25 (76%) of the somatostatin group ceased bleeding	Numbers too small to firmly exclude type 2 error No power study
Pedretti G <i>et al</i> , 1994, Italy	60 patients, previously diagnosed with hepatic cirrhosis, with current endoscopically proven variceal bleeds	Unblinded randomised controlled trial	Cessation of acute bleed and occurrence of rebleeding inside 24 hours	No statistical difference in cessation of bleeding; octreotide 76.6% (23/30) v terlipressin 53% (16/30)	Not blinded
Feu F <i>et al</i> , 1996, Spain	60 patients, previously diagnosed with hepatic cirrhosis, with current endoscopically proven variceal bleeds	Double blind randomised controlled trial	Cessation of bleeding for a 24 hour period inside 36 hours of randomisation	Cessation of bleeding in 64/80 patients (80%) treated with terlipressin and 68/81 patients (84%) treated with somatostatin. Statistical significance not reached	
Walker S <i>et al</i> , 1996, Germany	106 patient episodes of bleeding from endoscopically proven bleeding varices episodes in 72 patients	Double blind placebo controlled clinical trial	Cessation of bleeding for a 24 hour period within 24 hours of trial recruitment	91% (48/53) of terlipressin treated episodes and 81% (43/53) of the somatostatin treated episodes ceased bleeding. Statistical significance not reached	The inclusion of patients with multiple episodes who had variable numbers of sclerotherapy sessions may have introduced some bias

Magnetic resonance imaging or bone scintigraphy in the diagnosis of plain x ray occult scaphoid fractures

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Checked by Rick Body, *Clinical Research Fellow*

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Abstract

A short cut review was carried out to establish whether magnetic resonance scanning or bone scintigraphy is better at identifying scaphoid fractures not apparent on plain x rays. Altogether 11 papers were found using the reported search, of which four presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results, and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario

An adult presents to the Emergency Department review clinic two weeks after falling onto his outstretched hand. A scaphoid fracture was suspected but no fracture was seen on plain scaphoid views. He continues to have scaphoid tenderness. You wonder whether a magnetic resonance scan would be better than a bone scan in confirming or excluding a scaphoid fracture.

Three part question

In an adult with a [clinically suspected scaphoid fracture] is [magnetic resonance imaging better than bone scintigraphy] at [reaching a diagnosis]?

Search strategy

Medline from 1966 until March Week 1 2005: ((fracture\$.af. OR fracture#.w.de. OR Hand-fracture#.de. OR hand-injury#.de.

OR fracture-nonunion#.de.) OR (scaphoid-fracture#.de.)) AND (Nuclear-Magnetic-Resonance-Imaging#.de. OR magnet\$ ADJ reson\$ ADJ imag\$).mp. OR (magnet\$ ADJ reson\$ ADJ spect\$).mp. OR mri.af. OR nmr.af.) AND ((bone ADJ scan).mp. OR Bone-scintiscanning#.de. OR Medronate-Technetium-TC-99m#.de. OR Technetium-99m#.de OR Whole-body-scintiscanning#.de. OR scintigraph\$.af.))

Search outcome

Altogether 23 papers were found. Only three addressed the question. One further paper was found by searching the references. These four papers are shown in table 2.

Comment(s)

Only 145 patients appear to have been entered into any sort of comparison between the two imaging modalities. Magnetic resonance imaging appears slightly superior in diagnosing occult scaphoid fractures. Magnetic resonance imaging also allows accurate diagnosis of clinically significant soft tissue injuries, which may otherwise be missed. It is also quicker to perform than a bone scan. However, some patients with claustrophobia will not tolerate it.

► CLINICAL BOTTOM LINE

Magnetic resonance imaging is the investigation of choice in the clinically suspected scaphoid fracture after negative initial and 10–14 day follow up x rays. A bone scan is a reasonable alternative in patients with claustrophobia.

Tiel-van Buul MM, Roolker W, Verbeeten BW, *et al*. Magnetic resonance imaging versus bone scintigraphy in suspected scaphoid fracture. *Eur J Nucl Med* 1996;23:971–5.

Thorpe AP, Murray AD, Smith FW, *et al*. Clinically suspected scaphoid fracture: a comparison of magnetic resonance imaging and bone scintigraphy. *Br J Radiol* 1996;69:109–13.

Fowler C, Sullivan B, Williams LA, *et al*. A comparison of bone scintigraphy and MRI in the early diagnosis of the occult scaphoid waist fracture. *Skeletal Radiol* 1998;27:683–7.

Kitsis C, Taylor M, Chandey J, *et al*. Imaging the problem scaphoid. *Injury* 1998;29:515–20.

Table 2

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Tiel-van Buul MM <i>et al</i> , 1996, the Netherlands	19 patients with clinically suspected scaphoid fracture and negative initial x rays	Diagnostic cohort	Scaphoid fracture False positive False negative Agreement between methods	5 on MRI and BS 2 on BS 1 on MRI 11 of 16	3 patients did not complete MR scan because of claustrophobia
Thorpe AP <i>et al</i> , 1996, UK	61 patients (59 examinations) with signs of a scaphoid fracture but negative initial and 10 day follow up x rays	Diagnostic cohort	Scaphoid fractures False positive Other significant injuries	4 on BS and MRI 3 BS and 1 MRI 3 on MRI only	Only 52% attended follow up at 6 weeks for clinical evaluation and further x rays
Fowler C <i>et al</i> , 1998, UK	45 patients with clinically suspected scaphoid fractures with negative initial and 7–10 day follow up x rays. Telephone follow-up at 12 months and then clinical evaluation and further x rays if indicated	Diagnostic cohort	Scaphoid fracture False positive False negative Agreement between methods	6 on BS and MRI 2 BS 1 BS 40 of 43	2 patients did not complete MR scan because of claustrophobia. Only 8 patients followed up at 12 months (6 confirmed fractures and the 2 false positive on BS)
Kitsis C <i>et al</i> , 1998, UK	22 patients with suspected scaphoid fractures referred to a hand clinic after normal initial and 14 day follow up x rays. Follow up at 8 weeks for clinical evaluation and further x rays	Diagnostic cohort	Scaphoid fracture False positives Other significant injuries Agreement between methods	3 in BS and MRI 1 on BS 4 on MRI only 17 of 22	Small study. 1 patient had BS and then missed MRI

BS, bone scintigraphy; MRI, magnetic resonance imaging.

Diagnostic utility of arterial blood gases for investigation of pulmonary embolus

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Abstract

A short cut review was carried out to establish the diagnostic utility of arterial blood gas analysis in patients with suspected pulmonary embolus. Altogether 459 papers were found using the reported search, of which six presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results, and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario

A 28 year old woman presents to the Emergency Department with acute suspected pulmonary embolus (PE). You wonder whether normal arterial blood gases are sufficient to rule out PE.

Three part question

In [patients with clinical diagnosis of PE] do [arterial blood gases] aid in [making a definite diagnosis]?

Search strategy

Medline OVID1966–2005 Feb week 1 and Embase OVID 1980–2005 week 7: (exp pulmonary embolism/OR pulmonary embolus.mp.) AND (exp embolism/OR embol\$.mp. OR exp thromboembolism/OR thromboembol\$.mp.) AND (exp blood gas analysis/OR arterial blood gas\$.mp.)

Search outcome

Altogether 459 papers were found of which six directly addressed the question. These six papers are shown in table 3.

Comment(s)

Pulmonary angiography, the gold standard diagnostic tool in PE, has unacceptably high mortality and morbidity. At present, it cannot routinely be used in clinical practice. A reliable, cost effective, non-invasive test if identified would be of great use.

► CLINICAL BOTTOM LINE

Arterial blood gas analysis alone is of limited diagnostic utility in suspected PE.