Table 1

Author, date, country	Patient group	Study type	Outcomes	Key results	Study weaknesses
Tayal <i>et al</i> , 2003, USA	All patients suspected of having AAA	Diagnostic cohort	Positive or negative for AAA defined as abdominal aorta diameter >3 cm	29/125 scans positive for AAA. 27/29 positive on confirmatory test. Sensitivity = 100%, Specificity = 98%, NPV = 100%, PPV = 93%	Small number of patients. Lack of clear inclusion and exclusion criteria may have led to selection bias
Knaut <i>et al</i> , February 2005, USA	Emergency bedside ultrasound performed by EM physicians followed by a confirmatory test, ie, radiology ultrasound, abdominal CT, abdominal MRI and laparotomy. Convenience sample of patients ≥50 years with abdominal pain and scheduled for abdominal and pelvic CT scan with IV contrast as part of their evaluation.	Diagnostic cohort	AAA diagnosed by ultrasound and confirmed by CT	5/104 diagnosed by US were confirmed by CT. No false negatives. PPV of 0.00 at SMA, 0.67 in longitudinal view and 0.80 at bifurcation. NPV 0.099, 0.99 and 1.00, respectively	Convenience sample could lead to selection bias
Constantino <i>et al</i> , November 2005, USA	Ultrasound to measure the diameter of the abdominal aorta by either a resident or attending emergency medicine physician. Patients ≥55 years with at least one of the following: abdominal, back, flank or chest pain or hypotension as well as clinical suggestion of AAA	Diagnostic cohort	Difference in measured diameter at SMA, bifurcation and longitudinal view AAA measuring >3.0 cm on ultrasound	<1.41 cm at SMA, <1.05 at bifurcation and <0.94 in longitudinal view 95% of the time 36/238 had abnormal aortas, 34 AAA, 1 aortic dissection, 1 intraluminal clot. Sensitivity 100% for aortic abnormality, 94% for AAA. Specificity 100% for both end points	Did not include patients who went to OR for repair were not scanned Possible selection bias. Residents who performed EUS may have had more extensive training than most
Kuhn <i>et al</i> , September 2000, Australia	EUS performed by 3rd year EM residents. Patients in whom AAAs were expected, including those patients over ≥50 years presenting with abdominal/back pain of unclear origin or presumed renal colic. ED bedside ultrasound preformed by EM physician who had attended a 3-day ultrasound training course.	Diagnostic cohort	Positive for AAA defined as aortic diameter >3 cm Improvement of patient care	68 patients scanned, aorta visualised in 66. 26 true positives and 40 true negatives Sensitivity = 100%, Specificity = 100%, PPV = 100%, NPV = 100% Improved care in 46 patients, 0 adversely affected	Small study, only 68 participants Convenience sampling may have led to bias in selecting patients who are easier to scan or who have high clinical suspicion of AAA

AAA, abdominal aortic aneurysm; CT, computed tomography; ED, emergency department; EM, emergency medicine; EUS, endoscopic ultrasound scanning; IV, intravenous; NPV, negative predictive value; OR, operating room; PPV, positive predictive value; SMA, superior mesenteric artery; US, ultrasound scan.

Constantino T, Bruno E, Handly N, *et al*. Accuracy of emergency medicine ultrasound in the evaluation of abdominal aortic aneurysm. *J Emer Med* 2005;**29**:455–60.

Kuhn M, Bonnin R, Davey M, *et al*. Emergency department ultrasound scanning for abdominal aortic aneurysm: accessible, accurate and advantageous. *Ann Emer Med* 2000;**36**:219–23.

Use of aspirin in acute stroke

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Abstract

A short-cut review was carried out to establish whether the administration of aspirin before computed tomography scanning improved outcome in patients with symptoms suggestive of stroke. In all, 866 papers were found using the reported searches, two of which presented the best evidence to answer the clinical question. The author group, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of

these best papers are tabulated. If a computed tomography scan is to be carried out within 48 h of onset of symptoms, then it is prudent to await the result before starting aspirin.

Clinical scenario

A 67-year-old man with a history of angina presents with a sudden onset of left-sided weakness in the early evening. You know that the patient will not undergo a computed tomography scan until the next day and that if he is having a cerebral infarction he may receive some benefit from starting aspirin. You wonder if the potential benefit outweighs a possible increase in the risk of worsening any intracranial haemorrhage.

Three-part question

In [patients presenting with symptoms suggestive of a CVA [cerebrovascular event]] does [the administration of aspirin] prior to CT scan [improve outcome]?

Search strategy

Medline 1966–week 4 July 2006 using the Ovid interface, and *Cochrane Library*, 2006 Issue 3. Medline: [exp Cerebrovascular Accident/or stroke\$.mp. or cerebrovascular accident\$.mp.] and

Table 2

Author, date, country	Patient group	Study type	Outcomes	Key results	Study weaknesses
Chen <i>et al</i> , 2000, UK	Combination of 20 000 patients from the Chinese Acute Stroke Trial and 20 000 patients from the International Stroke Trial presenting with acute stroke symptoms	Prospectively planned meta-analysis of data to assess benefits and risks of aspirin in particular subgroups of patients, including those who did not undergo a CT scan	Recurrent ischaemic stroke in all patients; mortality without further stroke; haemorrhagic stroke or haemorrhagic transformation of infarct; benefit/hazard in patients randomised without CT scan; benefit/hazard in patients inadvertently randomised after shown to have had haemorrhagic stroke; combined outcome of further stroke or death	Reduction of 7/1000 patients ($p < 0.001$); reduction of 4/1000 patients ($p = 0.025$); increase of 2/1000 patients ($p = 0.035$); no significant difference in outcome in 9000 patients compared with patients who underwent CT scan before randomisation; no significant difference in outcome in 773 patients; reduction of incidence of 9/1000 patients	
Sandercock <i>et al</i> , 2003, UK	Randomised trials comparing antiplatelet treatment (started within 14 days of stroke) with control in patients with definite or presumed ischaemic stroke; total of 9 trials with 41 399 patients	Review of randomised trials	Outcome of patients with intracerebral haemorrhage, inadvertently randomised to receive aspirin	Significant reduction in odds of poor outcome (OR 0.68; 95% CI 0.49 to 0.94)	

CT, computed tomography.

[aspirin.mp. or exp Aspirin/or acetylsalicylic acid.mp. or ASA.mp.] and [acute.mp. or exp Acute Disease/or emergen\$.mp. or urgent.mp. or immediate.mp.] limit to humans and English language. *Cochrane Library*: (MeSH Cerebrovascular Accident or stroke) and (MeSH Aspirin OR aspirin).

Search outcome

In all, 734 papers were found in Medline and 132 in the Cochrane Database of Systematic Reviews. One paper was a combined analysis and one was a Cochrane systematic review with relevance to the question. Table 2 summarises the contents of these two papers.

Comments

In many hospitals in the UK, patients who attend with symptoms and signs suggestive of a cerebrovascular event will not undergo an immediate computed tomography scan outside of normal working hours. Several patients therefore have to wait for a long time before the underlying diagnosis is made and appropriate treatment is given. Most of these patients will have had a cerebral infarction, and are likely to benefit from antiplatelet treatment. The concern with giving all patients blind treatment is the risk of causing further bleeding in the event of a cerebral haemorrhage.

Most patients from studies reported in the Cochrane review and all patients in the combined analysis were taken from two large randomised trials, the International Stroke Trial and the Chinese Acute Stroke Trial. Although neither of these trials sought to answer the above-mentioned question directly, both trials inadvertently incorporated these patients as a subgroup. It was shown that aspirin improved the outcome in patients who had not undergone computed tomography and also in patients who were shown to have a haemorrhagic stroke.

Although treating patients who present with symptoms of a cerebrovascular event with aspirin increases the risk of intracranial haemorrhage, there is an overall benefit in terms of survival and recurrent stroke rates. Patients shown to have an intracerebral haemorrhage on computed tomography scan were also overall benefited from receiving aspirin.

These studies were based on starting aspirin within 48 h of presentation. No data were available on giving aspirin immediately at the time of presentation.

As a word of caution, an observational study by Toyoda *et al* suggested that prior treatment with aspirin may be an independent predictor of haematoma enlargement in patients with intracranial haemorrhage (odds ratio 5.02, 95% confidence interval 1.42 to 17.7). It may therefore be prudent to withhold aspirin treatment if a computed tomography scan is to be carried out within 48 h of presentation.

► CLINICAL BOTTOM LINE

Administration of aspirin is likely to benefit most patients overall, perhaps even those with haemorrhagic strokes. Available data demonstrate a benefit only to patients starting treatment with aspirin within 48 h of admission, and no data suggest increased benefit with earlier administration. If a computed tomography scan is to be carried out within 48 h of presentation, then it would be prudent to withhold antiplatelet treatment until the underlying pathology is shown. Those patients who are likely to improve the most will still benefit from administration of treatment at this point.

Chen ZM, Sandercock P, Pan HC, *et al*. Indications for early aspirin use in acute ischemic stroke: a combined analysis of 40000 randomized patients from the Chinese Acute Stroke Trial and the International Stroke Trial. *Stroke* 2000;1240-9.

Sandercock P, Gubitz G, Foley P, *et al*. Antiplatelet therapy for acute ischaemic stroke. *Cochrane Database Syst Rev* 2003;2:CD000029.

Toyoda K, Okada Y, Minematsu K, *et al*. Antiplatelet therapy contributes to acute deterioration of intracerebral haemorrhage. *Neurology* 2005;65:1000-4.

Myringotomy in traumatic haemotympanum

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Abstract

A short-cut review was carried out to establish whether myringotomy is of value in cases of haemotympanum. In all, 205 papers were found in Medline and 105 in Cochrane using the reported searches. None presented any evidence to