Leptospirosis

Dear Editor

AFP recently presented an interesting and succinct review of leptospirosis (*AFP* July 2010). We concur with the author's observations about diagnostic testing and would extend the author's observations by suggesting there are a number of clinical nuances and conundrums in the diagnosis of leptospirosis.[1]

If leptospirosis is suspected, and it is believed that the patient is in the acute phase, Leptospira polymerase chain reaction (PCR) may be requested. At the same time a Leptospira blood culture should also be requested, as it is more sensitive than the leptospiral PCR.[2] The blood culture also allows for the infecting serovar to be identified, which is pivotal for epidemiological investigations. As organism eliminating antibody production can begin as early as 4 days postinfection, a Leptospiral IgM enzyme-linked immunosorbent assay (ELISA) must also be requested, as the Leptospira remaining in the blood may be too low to be detected by the PCR. The clinician should ensure that serum and not urine or CSF is submitted for Leptospira PCR. The clinician should also refrain from requesting a Leptospira PCR if the patient has been ill for more than 7 days. Further, the serum sample drawn for Leptospira PCR must be taken before the administration of antibiotics and a repeat PCR 1, 2, 3 or 4 weeks after the initial PCR is inappropriate as there will be no Leptospira in circulation unless a second subsequent infection is suspected.[3] Culture and serology (microscopic agglutination test) remain as the gold standard for diagnosis of the disease.

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Reply

Dear Editor

I would like to thank Dr Scott Craig and colleagues for their valuable contribution to the topic of Leptospirosis and its diagnosis. As one of the few institutions in Australia conducting human PCR, culture and microscopic agglutination test (MAT), your insights are very valuable in guiding what testing should be performed during the course of a suspected Leptospira infection. What you have highlighted in your letter is that clinicians should consult a clinical microbiologist or infectious disease physician, and indeed the testing laboratory, when there is doubt over what is the most appropriate testing modality needed to make a diagnosis.

Andrew Slack
Gold Coast, Qld

TIAs

Dear Editor

In their article on transient ischaemic attack (TIA) (*AFP* November 2010), doctors Leung et al made no mention of patent foramen ovale (PFO) as a cause for TIA. In the past year we have had two patients who presented with a TIA with no identifiable cause until a transoesophageal echocardiogram revealed their PFO. Both were successfully repaired and have had no further episodes.

My understanding is that PFO is a relatively common and mainly benign condition, but its incidence is over-represented in patients presenting with TIA or stroke. General practitioners should consider this possibility in their patients if the more common causes for TIA, such as atrial fibrillation and carotid stenosis, are absent.

John Golder
Brisbane, Qld

Reply

Dear Editor

Our understanding is that PFO is not uncommon; with one population study finding 25.6% of randomly selected individuals having a PFO on transoeosphageal echocardiogram. It is also more common in patients with no other identifiable cause of stroke, especially in younger patients, suggesting that it may be a cause of stroke or TIA.[1]

However, studies have not been able to establish a clear relationship between the two, and the presence of PFO has not been found to increase the risk of subsequent stroke.[2] Similarly, treatment with either warfarin or surgery has shown no added benefit in preventing recurrent stroke.

While the data is limited, current recommendations for patients with TIA and a PFO are to commence an antiplatelet medication, with insufficient evidence to support surgical closure at this point in time.[3] In summary, we agree with the intent of Dr Golder and in our view would recommend that when a younger person presents with a TIA with no identifiable cause, a PFO should be considered and investigated accordingly.

Elaine Leung, M Anne Hamilton-Bruce,
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Pulmonary embolism

Dear Editor

There is an incorrect and misleading statement in Simon McRae's article 'Pulmonary embolism' (*AFP* July 2010). The author states 'modern multidetector CTPA is highly sensitive for PE, with a single negative study having been shown

to safely exclude PE', and quotes references. The first reference is 4 years old[1] and the second 5 years old.[2]

Computerised tomographic pulmonary angiography (CTPA) is not highly sensitive for detection of pulmonary embolism (PE), but it is highly specific (83% sensitivity and 96% specificity).[3] For a screening test to be clinically effective it has to have a high sensitivity and a high negative predictive value. That is, it detects virtually all the patients with the disease and virtually all the patients who do not have the disease, respectively.

Dr McRae's article makes no mention of the newer nuclear medicine techniques of V/Q tomographic studies (V/Q SPECT), replacing the old planar method, and the even newer V/Q SPECT with low dose CT, using hybrid imagining devices. Without low dose CT, V/Q SPECT has a sensitivity of 97% and a specificity of 88%. With the addition of low dose CT, the specificity increased to 100%.[4] These figures indicate that V/Q SPECT, with low dose CT, is the investigation of choice for suspected PE. This is even highlighted further with the current concerns for high radiation exposure of the female breast of CTPA, particularly in pregnancy.[5]

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Reply

Dear Editor

I thank Dr McLaughlin for his correspondence. He raises concerns regarding the statement that 'a single negative study' using a multidetector CTPA can be safely used to exclude the diagnosis of PE and quotes the PIOPED-2 study that suggested that CTPA has only 83% sensitivity for PE. This study used a composite endpoint to define the absence or presence of PE, rather than a single gold standard, and at most sites a four slice CT machine was used, which is now relatively uncommon among modern scanners.[1]

Dr McLaughlin notes that the nuclear method technique of V/Q SPECT was not commented on, and quotes the study of Gutte et al[2] which demonstrated high sensitivity of this technique for PE. It is worth noting that the final decision regarding the presence of PE in this study was made by unblinded consensus opinion, an approach that carries with it a risk of observer bias. Another recent study demonstrated a somewhat lower sensitivity (83%) of CT SPECT in comparison to CTPA, with observers in this instance blinded to clinical data and reporting of other scans.[3]

Most important is the concept that to truly demonstrate the safety of a diagnostic technique a clinical management study is required. In such studies the diagnostic test in question is applied prospectively to unselected patients, and the findings of that test are used to dictate management with prospective follow up to determine clinical outcome. A recent meta-analysis that pooled data from 2020 patients with suspected PE, in which anticoagulant therapy was withheld based on the finding of a single negative CT result, found that the 3 month incidence of venous thromboembolism in this patient group was 1.2% (95% CI: 0.8–1.8) a figure that compared favourably with the reported 3 month incidence of venous thrombosis following conventional pulmonary angiography (1.7%, 95% CI: 1.0–2.7).[4] Data from studies in which V/Q SPECT was used as the sole determinant of management in patients that were then prospectively followed is still limited, although an initial study demonstrated promising results with an incidence of confirmed venous thrombosis during follow up of 1.5 % (6/402) after a negative V/Q SPECT.[5]

Therefore, current data from management studies does demonstrate that a single CTPA is a safe means of excluding PE in comparison to the historical gold standard. However, the findings of the PIOPED-2 trial emphasise that where there is significant disagreement between clinical impression and imaging results, careful review of imaging is always warranted.

V/Q SPECT would also appear to be a promising imaging modality for PE, however, this author still feels that there is insufficient data from management studies to say that it is currently 'the investigation of choice'.

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