Debate & Analysis

Headache:

two views on the right approach in general practice

Headache is an example of a common symptom (others could be dyspepsia, bloating, or cough) which is usually of minor significance and clears up spontaneously but, rarely, is a warning of a serious underlying disorder. GPs often have to tread a narrow path between missing serious disease and over-investigation, which can be harmful as well as wasteful. We present two views on the approach to headache in general practice.

HEADACHE: SHOULD GPs HAVE DIRECT ACCESS TO IMAGING?

Yes, they should, and it is difficult to argue the opposite, although the well-rehearsed arguments against scanning patients with headaches apply equally to neurologists and GPs.

The value and cost of magnetic resonance imaging (MRI)

'MRI rarely helps the diagnosis'. This statement is correct in broad terms, however, apart from migraine and tension headaches (the commonest types of headache), most other potential diagnoses require imaging to exclude unusual causes. Neurologists may be more knowledgeable about rare forms of headaches, but all the rare forms require imaging. The first presentation of cluster headache requires imaging, autonomic cephalalgia requires imaging, and cough headache requires imaging ...

'MRI is expensive'. The same applies to hospital appointments. Gatekeeping is a characteristic of general practice, and not a forte of neurologists. An interesting exercise would be to compare the proportion of patients referred for an MRI by their GP when they consult for headaches, with that of patients attending headache clinics.

An integrated headache service

In Nottingham city, access to MRI for patients with headache refractory to medical management is available in primary care. The service has been in place since 2010 and the number of patients referred via the GP MRI pathway has steadily increased from about 40 in the first quarter of 2010, to 130 in the first quarter of 2014. When we last looked at this cohort of patients, we indeed found some significant pathology that would immediately alter patient management.[1] As expected, we also found a moderate percentage of truly incidental findings, small vessel ischaemic changes, and non-specific white matter dots. The incidence of pathology directly attributable to headache symptoms, was much lower than the incidence of everything else we found.[1] The low primary yield and rate of incidental findings are well known and published widely[2] and in our review we found the two rates were broadly similar between the GP MRI pathway, and patients undergoing MRI following a neurologist review in a headache clinic. So why are we still continuing with the pathway, if the yield is so low?

> *"By offering MRI for some patients with headache in a primary care setting we bring an investigative step forward in the overall management pathway, bridging between primary and secondary care management."*

First, there is the obvious advantage of patient (and clinician) reassurance if an MRI is normal, which can allow continued treatment in primary care using defined care pathways, and also prompt referral if an MRI is abnormal. There is another advantage: patients with persistent clinical symptoms that are refractory to medical management, but who still need referral, will already have the result of an important investigation by the time they are first seen. This allows the neurologist, during the initial clinical consultation, to concentrate on the patients' symptoms and management without the nagging concern that there may be an underlying structural pathology.

Pragmatically, with emergency departments and acute medicine units under enormous pressure, one can argue that it is also better for the patient to undergo an MRI as part of an agreed management pathway, than for them to attend their local busy emergency department with 'worst headache ever' symptoms. The latter usually results in a computerised tomography for subarachnoid haemorrhage and a lumbar puncture, which means that many patients undergo a less sensitive test than MRI and an associated radiation penalty.

Collaboration and education

There are two important caveats to this process. One is that MRI should only be offered as part of an agreed primary care management pathway in conjunction with neurologists, neuroradiologists, and GPs. MRI is only one piece of a complex puzzle for these patients. A normal MRI will not make the headaches go away, and an 'incidental finding' MRI may even make primary care management more difficult. To try and counter this, we advise that the requesting clinician clearly details the history (for example by using specific templates); has modified radiology reporting to include specific guidance at the end of each report stating whether the scan is normal, has an incidental finding, or is abnormal; and crucially, whether the incidental or abnormal findings need to be acted on by a routine or urgent referral.

The other is that education for all involved parties is crucial. If the radiologist understands the dilemmas faced by the requesting GP when presented with a report full of unnecessarily complex terminology, they can change their reporting style. If the GP liaises with the neurologist and understands the nature of incidental findings on MRI, they can pass this information on to the patient and avoid unnecessary patient concern.

By offering MRI for some patients with headache in a primary care setting we bring an investigative step forward in the overall management pathway, bridging between primary and secondary care management. We have found that using direct access as a tool, we structured a coherent pathway of care and investigation that improved consistency and care quality with an added bonus of enhancing primary care professionalism.

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"In an emotive clinical area … knowing how much different management options cost, and how much they yield, can facilitate the difficult decisions GPs face when patients present with headache."

HEADACHE: PROCEED WITH CAUTION

Brain tumours, or more accurately the possibility of brain tumours, are a real problem for primary care. The commonest symptom — headache — is ubiquitous, almost part of being human. The annual prevalence in the population is 70% and 20% of the population have headache that impacts on their quality of life. Not a week goes by without a GP seeing someone with a headache, yet an average full-time GP will only encounter a handful of brain tumours in their career.

Diagnosis of brain tumour

Brain tumours matter. They disproportionately affect younger patients compared with other tumours, so life years lost are greater than in most cancers. A small number are curable, especially in children with posterior fossa tumours. Palliation of symptoms and some extension of life are usually possible, even in those who cannot be cured. There is also ample evidence of diagnostic delay, although perhaps a better description is diagnostic difficulty. Sixty-two per cent of central nervous system tumours present as an emergency; particularly reflecting that some brain tumours present with a seizure.[3] Over one-third of patients describe visiting their GP three or more times before diagnosis, although brain tumours are not particularly unusual in that regard.[4] In the UK, over 200 (8% of the total) brain tumour deaths are deemed to be avoidable when compared with the best performing European country, although when compared with the mean performance, the difference is much smaller.[5] Patients also want testing for reassurance when they have headache, even if the chance of a tumour is low.[6] All these factors are seized on — in our view unfairly — to berate GPs.

Over-investigation

However, there are disadvantages to over-investigation. Against a background of increasing demands on limited healthcare resources, the cost of investigating everyone with headache would be prohibitive. And the distress caused by finding incidental abnormalities should not be overlooked. These can be identified in over 5% of 'normal' scans. Apart from causing considerable anxiety,[7] they can have implications for financial and insurance applications.

There is no doubt that GPs find diagnosis of headache problematic and where there is diagnostic uncertainty in the absence of red flags, specialist opinion may help. The much lower neurologist:patient ratio in the UK compared with Europe complicates this. However, the evidence suggests that when GPs have open access to imaging, they can do so effectively and appropriately.

So, it is easy to make an argument for avoiding unreasonable delays in diagnosis, while also trying to avoid over-investigation, with its clinical and economic costs. We agree with Taylor and colleagues that open-access scanning is helpful, and can be sensibly used: the thorny problem is not how should patients be scanned but *who* should be scanned.

Patient selection

How can we inject some sense into this toxic mix? An economic evaluation that relates costs of interventions to their benefits to facilitate an efficient allocation of limited resources would be a useful first step. As in the whole field of cancer diagnosis, it is easy to identify the 'costs' side of the equation, but much harder to identify the benefits. So our model would estimate cost, cost effectiveness (cost per tumour identified), and cost utility of a number of options:

- scanning everyone that gets headache;
- scanning everyone that gets headache that impacts on their quality of life;
- scanning everyone that gets headache sufficient that they see their GP; and
- scanning everyone with headache with signs or symptoms suggestive of underlying pathology.

A number of assumptions would have to be made, including the utility of early diagnosis (however, from our previous work it can be shown that the majority of tumours will present 3 months after the initial headache consultation[8]), the utility of reassurance, and the disutility of finding incidental abnormalities.

All of these calculations can be benchmarked against NICE estimates of cost per quality-adjusted life year (QALY). In an emotive clinical area and against a background of political rhetoric driving the agenda, knowing how much different management options cost, and how much they yield, can facilitate the difficult decisions GPs face when patients present with headache.

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