consequences of the alternative management options, the quality of the supporting evidence, estimates of values and preferences, and resource use. Ultimately, guideline panels must use judgment in integrating these factors to make a strong or weak recommendation. The GRADE system has several advantages: it uses a transparent and explicit approach and is evidence based. GRADE is now the preferred quality of evidence rating system, and has been adopted by over 50 organizations worldwide.

PMR GUIDELINES

18. CHALLENGES IN DEVELOPING CLINICAL PRACTICE GUIDELINES FOR DIAGNOSTIC TESTS: A SYSTEMATIC LITERATURE REVIEW OF THE USE OF IMAGING FOR THE DIAGNOSIS OF POLYMYALGIA RHEUMATICA

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Clinical practice guidelines (CPGs) are potentially a powerful tool for driving up quality of care within healthcare systems, and are developed with the aim of improving patient outcomes. It is essential that there is transparency in formulating CPGs and that they are based on the best available evidence. The scheduled update of the British Society for Rheumatology (BSR) guidelines on diagnosis and management of PMR [1] has come at a time of fast-moving developments in imaging tests for PMR, particularly for diagnosis. For example, US, MRI and PET/CT are all powerful techniques for visualizing structural and functional abnormalities in inflammatory diseases such as PMR. A systematic literature review was therefore requested by the BSR PMR guideline development group to survey the state of the evidence and inform the updated version of the guidelines. The review focused on the utility of imaging tests for diagnosing PMR accurately in routine clinical practice, rather than on their role in research into disease pathogenesis.

Challenges common in reviews of any diagnostic test include: the need to build a very broad literature search strategy, since diagnostic test studies are not well-tagged in online databases; the need to extract paired values (e.g. sensitivity and specificity, or positive likelihood ratio and negative likelihood ratio) rather than a single effect size as is usual for reviews of treatments; the fact that discovery-type studies and those intended to shed light on disease pathogenesis often do not have an optimal design for informing everyday clinical decisions about which test to do; and the indirect link between diagnostic accuracy and improved patient outcomes.

Particular challenges relating to reviews of imaging in PMR include: the importance of test reproducibility in different settings; the importance of imaging for detecting other causes of PMR-like symptoms (depending on clinical presentation); and the need for sufficiently long follow-up to ascertain a diagnosis of PMR.

Approaches we took to these challenges included: involvement of a healthcare librarian to formulate an inclusive search strategy; use of 2×2 tables in the data extraction form; categorization of study designs and a quality scoring form based on the QUADAS-2 checklist; formulation of several PICOT (patient, intervention, control, outcome, timescale) questions reflecting each link in the chain between diagnostic accuracy and patient outcomes; extraction of data about test reliability; extraction of data about clinical presentation/spectrum of both patients and any controls; and extraction of data about the ascertainment of the diagnosis.

Methodological aspects, preliminary results and general implications for CPG development will be discussed at the conference.

References

19. TREATMENT GUIDELINES FOR POLYMYALGIA RHEUMATICA: THE NURSING PERSPECTIVE

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The impact of developing PMR is immense for the patient and from a nursing perspective requires a holistic approach to care.

Education at diagnosis is crucial. This includes education about the disease itself, medications required and the potential impact of the condition on the person as a whole. It is important for the patient to be given time at the first appointment to absorb the facts and be able to ask questions. Taking the time to explain the reasons for the glucocorticoid (GC) treatment, the benefits of the medication and the potential side effects will allow the patient to participate in the process of shared decision making and lead to patient empowerment.

Reinforcement of education: The primary focus of a nursing collaboration is to reinforce and clarify the information given to them by the doctor. Including the patient in the nursing or medical consultation, explaining blood test results and what they mean in relation to activity of the condition will allow the patient to gain an understanding of the decision process related to steroid therapy, dosing and treatment goals.

Discussing glucocorticoids: With the patient and the reasons for altering the dose in relation to symptoms will enhance patient knowledge of their own condition, build up self-confidence in the patient’s own ability to understand the differences between activity of the disease compared with other symptoms such as mechanical pain. As with the DAS score for RA, it will be beneficial to develop an assessment tool that assesses disease activity of PMR at each appointment.

Physiotherapy: Alongside information provided in the clinic setting, early referral to the physiotherapist is important. An initial physiotherapy assessment followed by an individualized exercise programme to maintain muscle strength in the upper and lower limbs will be beneficial alongside medical treatment. Other co-morbidities such as OA can be addressed at the same time enabling the patient to engage between their OA and symptoms of PMR.

Advice line: An initial diagnosis of PMR and a prescribing a treatment regime is daunting to many people. Therefore a rheumatology advice line for PMR is important. An experienced clinical nurse specialist is able to discuss the symptoms, view recent blood test results, clinical correspondence and work through patient concerns and adverse events, and come to a treatment plan which may or may not require further follow-up consultation with the doctor. This allows the patient query to be resolved either over the telephone, an urgent rheumatology appointment or by advising the patient to see the general practitioner if the problem is unrelated to PMR. Providing an advice line for patients may prevent unnecessary increases in the GC and may also prevent additional general practitioner visits.

Participation in research: The nurse specialist may also be able to motivate patients to join research studies and clinical trials that are urgently required for understanding and treatment of the condition.

LARGE VESSEL VASCULITIS

20. AORTA AND LARGE VESSELS: APPLIED ANATOMY

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Anatomy remains the cornerstone of much diagnosis and treatment. There are old ways and new ways of seeing, and imaging strategies offer elegant ways of demonstrating and explaining anatomical concepts as well as defining patient disease. Traditional catheter angiography is being replaced by increasingly sophisticated non-invasive modalities, with catheter angiography usually being reserved for intervention.

From head to toe, imaging can show all the vital structures that are involved in the wide spectrum of presentations and conditions that underpin the large vessel vasculitides from the arch and great vessels to the mesenteric vasculature and beyond. Ultrasound examination of the superficial temporal artery and axillary artery is reaching the clinical forefront, as ultrasound becomes an extension of the physical examination, ultrasound now widely being regarded as the
stethoscope of the 21st century. Gated CT acquisition can show coronary arteries, conventional CT all major arteries of the body, and MRA can give fast and reproducible rendering of luminal anatomy of the whole body.

Vascular disease is conceptually simple. Three concepts are key. First, pathophysiological mechanisms are limited. Vessels can be narrowed or blocked (stenosis/occlusion) or indeed can swell, burst or tear (aneurysms, ruptures and dissections). Secondly, pathology can be understood in terms of conditions that affect the lumen, wall and vessel externally, and so a vessel can become blocked at any of these levels (embolus, atheromatous plaque or external compression). Steno-occlusive disease in the axillary artery may be due to embolus, atheroma, dissection, large vessel vasculitis or due to external compression by a brachial plexus mass. Thirdly, vascular structures can appear on imaging structures in strange locations or similarly be absent, with or without clinical significance - and so congenital anomalies, normal variations, collateral vessels, and surgical reconstructions from by-passes or transplantation for example, can muddle the waters. When seeing a long seemingly small calibre axillary artery, the question is posed: ‘Is this vessel abnormal?’, and sometimes the answer on conventional cross-section imaging, but often by selective catheter angiography may be required to confirm a diagnosis. Another disease can affect aorta with overlapping presentations include retroperitoneal fibrosis. Other mimics include GCA. Therefore, imaging techniques are often required to secure early diagnosis of LVV.

Role of imaging techniques in the diagnosis of large-vessel vasculitis: The earliest vessel wall alterations in LVV are inflammatory in nature, consisting of arterial wall oedema and thickening. The 18F-Fluorodeoxyglucose (FDG) PET (FDG-PET), Colour Doppler sonography (CDS), MRI and CT are all suited to pick up such immuno-inflammatory changes. FDG-PET, with or without co-registered CT (PET/CT), is very sensitive in detecting increased uptake of a glucose analogue (FDG) by metabolically active cells within inflamed arteries. Vascular FDG uptake can be graded on a 0–3 scale (where 0 = no vascular uptake, 1 = uptake lower than liver uptake, 2 = uptake similar to liver uptake, and 3 = uptake higher than liver uptake), thus allowing a semi quantitative assessment of the amount of arterial inflammation. FDG-PET is traditionally considered one of the most sensitive techniques to reveal active LVV, and has the advantage of visualizing nearly all potentially affected arteries except for temporal and renal arteries. Limitations of FDG-PET include the lack of visualization of the vessels’ anatomy, the exposure to ionizing radiation, its high cost and its restricted availability.

CDS, MRI and CT are all able to demonstrate increased arterial thickness and transmural oedema in affected arteries from patients with LVV. Vessel wall oedema appears as a hypoechoic halo around the arterial lumen on CDS and a bright signal on enhanced T1-weighted MR and CT images. A bright signal on T2-weighted MR images can also be observed in inflamed arteries, but is less sensitive than enhancement on T1-weighted images to demonstrate active vasculitis. CDS is best used to investigate superficial arteries such as the temporal, carotid, subclavian and axillary arteries because its power of visualization is restricted and 3D-CDS is better suited to investigate superficial arteries because of its power of visualization is restricted. Pathology can also be observed in inflamed arteries, but is less sensitive than enhancement on T1-weighted images to demonstrate active vasculitis.

Depending on the technique used, LVV is found at onset in 30–80% of patients with GCA. Patients with large-vessel involvement have less often a positive temporal artery biopsy (56% of cases), less frequently cranial manifestations, and are thus less likely to fulfill the ACR criteria for GCA.

Role of imaging techniques in monitoring the course of large-vessel vasculitis: Arterial inflammatory changes tend to improve or resolve after commencing immunosuppressive or biologic treatment. Decrease in, or disappearance of vascular FDG uptake at PET or of transmural oedema at CDS, MRI and CT document efficacy of therapy. However, there may be a time lag between the clinical response and the improvement in transmural oedema. Therefore, imaging can aid in assessing the degree of arterial thickening may persist after inflammation and the attainment of remission, especially in patients with longstanding disease, and should not be construed per se as a sign of active vasculitis.

About one-fifth to one-fourth of patients with GCA develop large-vessel complications, including stenosis and aneurysms. CDS, MRI angiography (MRA) and CT angiography (CTA) are useful to document such changes. Again, CDS is better suited to investigate superficial arteries, while MRA and CTA are indicated to study deep large arteries. Digital subtraction angiography can also be used to study arterial luminal changes, but it has been largely superseded by CTA and MRA, which carry a lower risk of complications. A subset of patients with GCA develop vascular stenosis (mainly in the upper limbs), while others develop aneurysms of the thoracic aorta (17 times more frequent than matched controls) or abdominal aorta aneurysms (2.4 times more frequent than controls). Stenotic lesions and aneurysms rarely occur together. Dissection of the thoracic aorta (with or without associated aneurysm) is the most dreaded large-vessel complication, because it is associated with higher mortality rates.

Stenotic vascular inflammation can be observed in up to one-third of patients with PMR, but only ~10% have evidence of true LVV at onset. On the other hand, reports of vascular complications in patients with pure PMR are exceedingly rare.