RHEUMATOLOGICAL ASPECTS OF GENERAL MEDICINE

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Despite the increasing sub-specialisation of hospital practice, acute medical receiving retains a challenging diversity of clinical problems. I shall attempt to give a personal view of rheumatological cameos which regularly appear in the general medical setting and will not attempt to re-visit 'recent advances' which were the subject of a journal article very recently.[1]

'FIRST THINK OF IT'

The absence from most medical case notes of a basic locomotor history or examination continues to be a key omission. Although clinical skills taught to undergraduates increasingly encourage locomotor assessment, the pressure of time often precludes a full musculo-skeletal examination in all but a minority of House Officer clerkings (particularly when performed in the heat and bustle of emergency receiving). Audits show that less than 10% of medical admissions have a documented examination of the joints; this is unfortunate, and perhaps unacceptable, since many medical (and probably surgical) patients also have important and potentially treatable locomotor disorders.

Doherty and colleagues[2] identified locomotor symptoms in nearly half of an unselected group of 200 medical in-patients. Despite the documented recording of drug histories which included anti-rheumatic agents in many cases, less than 15% of clerkings recorded any rheumatological symptoms. Similarly, details of joint examination were included in only 6% of clerkings, although 54% of those patients examined in the study had detectable locomotor dysfunction. These are disturbing omissions since in this country the majority of medical admissions are now of patients over 60 years old, and joint disease becomes increasingly prevalent with age. Overall 20% of the medical in-patients had an identifiable locomotor disorder which was readily treatable. A holistic approach to admitting medical patients demands recognition of remediable pathologies over and above the presenting complaint.

Key points
Recognise locomotor morbidity; assess disability

- **Locomotor disease should be actively sought in the admission clerking of all patients over 50 years.**
- **About 20% of medical in-patients will have a treatable locomotor disorder in addition to their admission complaint.**
- **Disability should be formally assessed using HAQ, Barthel Index or equivalent.**
- **Unrecognised locomotor or neurological co-morbidity can prolong hospital stay and prejudice clinical outcome.**

FUNCTIONAL ASSESSMENT

Rheumatologists are aware of the need to identify and treat dysfunction as well as disease. The Health Assessment Questionnaire (HAQ) has been devised to assess dysfunction as a comparative measure of disease severity and progression.[3] Similar simple scales are used in geriatric and neurological practice, and reliably identify difficulties in the 'Activities of Daily Living'.[4] One or other of these scales should now be incorporated in every medical clerking (Table 1). The early recognition of disability and the

TABLE 1
Functional assessment.⋆

Mobility	
Walking	Independent / With assistance / Can't do
Transferring bed/chair	Independent / With assistance / Can't do
Household and shopping	
Cooking & Cleaning	Independent / With assistance / Can't do
Shopping	Independent / With assistance / Can't do
Bath and toilet	
Bathing/Shower	Independent / With assistance / Can't do
Toilet	Independent / With assistance / Can't do
Continence	Continent / Urinary Incontinence / Faecal Incontinence
Dressing	Independent / With assistance / Can't do

⋆ Modified from Barthel Index[4] and Health Assessment Questionnaire.[3]

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involvement of paramedical colleagues and social workers may significantly improve outcome and shorten hospital stay. Although nursing staff often make such assessments, it is essential that the doctors also carry out assessments independently.

THE 'HOT' JOINT

Important locomotor disabilities may be uncovered during an admission for chest pain, pneumonia or elective surgery. Locomotor problems may also bring patients into contact with the acute services; the first presentation of an inflammatory arthropathy or an acute flare-up in established arthropathy occasionally leading to urgent admission to a general ward.

The principles of bed rest and full doses of non-steroidal anti-inflammatory drugs (NSAIDs) are well disseminated and practised.[5] Early physiotherapy with pain-relieving ice packs and the use of resting splints are less well appreciated, and the facility to aspirate and inject intra-articular steroid, at least into the knee joint, should be within the competence and skills of the well-trained medical registrar.

Fortunately, the possibility of occult, and potentially fatal, septic arthritis arising *de novo*, or more commonly in an immuno-compromised patient with chronic arthropathy and in those with prosthetic joints, is generally well recognised and appropriately investigated.[6] Those infrequently involved in the care of joint disease may not, however, appreciate the value of a white blood count - estimated formally by Coulter Counter - on the synovial fluid obtained at joint aspirate[7] (Table 2). This is more valuable than the subjective quantification of neutrophil numbers at microscopy of the bacteriology specimen. Polarised light microscopy should be carried out in acute undiagnosed monoarthropathy to look for the tell-tale urate or pyrophosphate crystals of gout or pseudogout. Serum urate can be misleadingly normal in acute gout.[8]

Organisms are to be found in more than half the joint aspirates of patients with septic arthritis unless they have received antibiotics prior to admission. In 80-90% of adult cases the organism identified will be *S. aureus, S. epidermidis* or Streptococci. Gonococci are rare in British practice, but Gram-negative bacilli and occasionally anaerobes might be suspected in the frail elderly, intravenous drug addicts or immuno-compromised patients. High-dose combinations of intravenous penicillins remain standard initial treatment for joint sepsis with penicillin and flucloxacillin, a common combination.[9] In cases where Gram-negative infection is suspected, high-dose intravenous cefotaxime may be added. In cases of proven staphylococcal infection, many clinicians replace penicillin with fusidic acid, although thrombophlebitis is common with its intravenous use, and nausea and vomiting may result from oral therapy.

Serial joint aspirates or formal drainage is often recommended and liaison with orthopaedic colleagues is advised. Intra-articular antibiotics are seldom used, but antibiotics are usually given orally after the fever has settled and continued for four to six weeks. Supportive therapy including opioid analgesics may be required initially and simple joint splintage is highly effective but often forgotten in the general ward setting.

Key points
The 'hot' joint

- **Joint aspiration is indicated in unexplained acute monoarthritis and the ill-looking rheumatoid patient.**
- **A formal white blood count on the synovial fluid is a valuable adjunct to diagnosis.**
- **Synovial fluid culture and polarised light microscopy are both indicated if infection or crystal arthropathy are suspected.**
- **Effective analgesia, physiotherapy, and the use of splints and ice packs are of value in acute arthropathy.**
- **Adequate doses of anti-staphylococcal antibiotics should be given for suspected septic arthritis pending synovial fluid culture and sensitivity.**

OSTEOPOROTIC VERTEBRAL FRACTURE

Osteoporotic vertebral collapse is an extremely painful condition in older patients who may have several other concomitant pathologies. Emergency admissions are not infrequent, and betoken the need for rapid and effective analgesia. Adequate doses of parenteral opioids are usually necessary for patients who find lesser analgesics ineffective and may already have been receiving them on a regular basis for pre-existing arthropathies. Appropriate investigation to exclude pathological fractures due to underlying malignancy, especially myeloma, should be undertaken. Rarer causes such as thyrotoxicosis and metabolic bone disease are usually considered by practitioners but most fractures will be idiopathic or related to prescription of corticosteroids.[10] Steroid-induced fractures may occur within weeks of commencing therapy, particularly in individuals with other risk factors for osteoporosis (Table 3). Physiotherapy including the use of

TABLE 2
Leucocyte counts in synovial fluid aspirates.

Condition	Cell count x 10^9 /L	Differential
Normal	0 - 0.5	-
Trauma	0 - 10.0	-
Osteoarthritis	0 - 6.0	-
lnflammatory arthritis	5.0 - 100.0	<90% neutrophils
Crystal arthritis	5.0 - 300.0	-
Septic arthritis	5.0 - 500.0	>90% neutrophils

transcutaneous electrical nerve stimulation (TENS) machines may also allow sufficient pain relief and wakefulness to allow early mobilisation, but patients are often at high risk of deep vein thrombosis and appropriate prophylaxis should be initiated.[11]

TABLE 3
At risk groups for osteoporotic vertebral fractures.

- Post-menopausal or oophorectomised females.
- Low body-mass index.
- Personal or family history of minor trauma fracture.
- Endocrine disease: thyrotoxicosis, hyperparathyroidism, Cushing's syndrome.
- Long-term or high-dose steroid use.
- Chronic disease.
- Poor mobility.
- Recurrent falls.

Most readers will be aware of the burgeoning pharmaceutical market for the secondary prevention of osteoporotic fracture. The newer bisphosphonates and vitamin D analogues may be valuable for women unable or unwilling to consider hormone replacement therapy (HRT).[12,13] Few trials of such treatment in men were carried out, but bisphosphonates and calcium and vitamin D are used, and testosterone is sometimes recommended if hypogonadism is demonstrated. There have been no comparative trials with informative clinical end-points between the different agents and the consequences and benefits of very long-term use remain uncertain. It must be borne in mind that the efficacy of treatments in secondary prevention of fractures has been shown mainly as a reduction in radiological fractures and improvement in measurements of bone density. Our inability to delineate high-risk groups can mean additional long-term therapy for a group of patients often already overburdened by poly-pharmacy.

Key points
Osteoporotic fractures

- **Osteoporotic vertebral collapse necessitates adequate opioid analgesia.**
- **Pathological causes of fracture should be sought radiologically and biochemically.**
- **Prophylactic low-molecular-weight heparin should be commenced.**
- **Secondary prophylaxis with hormone replacement therapy, bisphosphonates, or calcium and vitamin D should be considered.**

INTESTINAL COMPLICATIONS AND NSAIDS

The risk of acute gastro-intestinal haemorrhage associated with the use of NSAIDs is appreciated by all practitioners.[14] The risk of any individual suffering a serious NSAID-induced side-effect is low but the huge number of NSAID prescriptions worldwide has resulted in significant mortality and morbidity with these useful drugs. Their superiority over other analgesics in degenerative arthritis is dubious, and there is a trend away from their use in osteoarthritis and soft tissue injuries. Chronic anaemia as a result of occult bleeding from the large and small bowel is also now recognised as a complication of NSAID therapy; perforation and stricturing have also been described.[15] The site of bleeding can be particularly difficult to confirm and localise. Enteroscopy of the jejunum[16] is available at few centres so the diagnosis may rest on the confirmation of recurrent anaemia with positive faecal occult blood tests, and negative upper gastro-intestinal endoscopy and large bowel investigations. A trial withdrawal of the NSAID and substitution of analgesic and/or low-dose prednisolone with subsequent resolution of the anaemia may provide supportive evidence of NSAID enteropathy.

Perforation and stricturing can also present diagnostic difficulty[15] since the classic signs of the acute abdomen may be modified in patients taking NSAIDs. Abdominal pain may be absent, and vomiting and non-specific abdominal distension may be the only signs of a potentially fatal condition. Repeated and critical clinical review in consultation with surgical colleagues combined with abdominal imaging may be necessary to unmask a silent perforation. Withdrawal of the NSAID is clearly appropriate, but laparotomy and surgical repair may be necessary to make the diagnosis and to repair any bowel damage.

Strategies for preventing the more frequent cases of suspected NSAID-associated upper gastro-intestinal problems remain confusing. Dyspepsia is neither a sensitive nor a specific marker of ulceration, and endoscopic examination is advisable if there is no alternative to long-term NSAID use. In cases of actual ulceration associated with dyspepsia or haemorrhage, the NSAID should be withdrawn and H2 antagonists or proton pump inhibitors should be prescribed. The role of Helicobacter infection in NSAID-associated ulcers remains unclear,[17] but most pragmatic clinicians elect for eradication therapy in this situation. Perhaps the most difficult decision following an ulcer or complication concerns the future use of NSAID and the choice of treatment for ulcer prophylaxis. Rheumatologists are frequently invited to give an opinion in surgical wards when the arthritic patient has developed disabling pain and stiffness following the withdrawal of NSAID therapy after a drug-related complication.

There appears to be a hierarchy of risk for NSAIDs (Table 4) which may relate to their duration of action, their relative selectivity for the cyclo-oxygenase (Cox) 2 pathway of prostaglandin inhibition or probably the relative dose of the individual drug.[18] Ibuprofen, one of the oldest NSAIDs, is considered a relatively low risk for inducing gastro-intestinal bleeding, perhaps because it is often prescribed at a relatively low dose compared to other NSAIDs. This has been recognised and lead to ibuprofen being available as an 'over the counter' preparation, and is often recommended following NSAID-related problems.

Misoprostol and omeprazole are licensed for prevention of NSAID-associated ulcers but evidence for their prophylactic value is sparse;[19,20,21] patients mostly elect to take these drugs only if they relieve NSAID-related upper gastro-intestinal symptoms. Misoprostol, a synthetic

TABLE 4
Reported ranking of serious adverse reactions to NSAIDs.

	Drug	Half life (hours)
High risk	Azapropazone	20
	Piroxicam	35+
	Fenbufen	15
	Sulindac	18
	Diflunisal	10
	Fenoprofen	3
	Naproxen	14
	Diclofenac	1-2
	Ketoprofen	1-2
	Flurbiprofen	1-2
Low risk	Ibuprofen	1-2

prostaglandin analogue, has been shown to heal and prevent endoscopically-proven ulcers and erosions when co-prescribed with NSAIDs[19] but can cause diarrhoea. Many clinicians have reservations about the need to prevent endoscopically-visible lesions which may have no clinical significance. Silverstein and colleagues demonstrated that co-prescription of misoprostol with NSAID reduced the chance of a serious upper gastro-intestinal complication of NSAID therapy by 40% in patients with rheumatoid arthritis.[19] However, since perforation, obstruction or bleeding only occurred in 67 of nearly 9,000 patients over a six-month period most clinicians are reluctant to advise universal prophylaxis with this agent. Omeprazole may be superior to misoprostol in the prevention of NSAID-induced ulceration.[20] Endoscopic studies show that approximately 1/3 of NSAID users develop endoscopic lesions over six months of follow-up when given prophylactic omeprazole whilst only half of those on misoprostol prophylaxis have visible lesions. The clinical relevance is debatable since only 2 of 331 on prophylaxis with placebo develop ulcer complications.[21]

Clinical risk stratification should be attempted to avoid unnecessary use of prophylaxis. High-risk factors include age over 75, history of previous peptic ulcer, history of gastro-intestinal bleeding, and (interestingly) a history of cardiovascular disease. Whilst the presence of any one factor approximately doubled the risk of a serious gastro-intestinal adverse event, three factors occurring in combination in the same content increased the risk 13-fold and the co-presence of all four factors increased the risk 23-fold.[19] It would, therefore, seem reasonable to target prophylaxis at vulnerable groups with several risk factors.

Key points
NSAIDs and the gastro-intestinal tract

- **Gastro-intestinal side-effects from NSAIDs are common but individual serious toxicity is relatively rare.**
- **Prophylactic misoprostol or proton pump inhibitors should be targeted at high-risk individuals.**
- **A hierarchy of comparative toxicity relates to duration of drug action, absolute dose and identifiable clinical risk factors.**
- **NSAIDs should be avoided in osteoarthritis unless compound analgesics and/or physical measures have been unsuccessful.**
- **NSAIDs can also cause occult low-grade enteric and colonic bleeding, and stricture.**

A few common clinical problems are reviewed and these are familiar to most physicians. Despite the major scientific advances in genetics and molecular biology the burden of chronic disease will rest with physicians for the foreseeable future, and emergency medical receiving will continue to be a challenge. Rheumatology will continue to feature large in this respect.

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