Causes of dyspnoea in rheumatoid arthritis

Incidental causes

Complicating rheumatoid arthritis:

Cardiac:

Pericardial effusion
Aortic, mitral valve disease

Medication:

Methotrexate fibrosis
Gold fibrosis
Asthma induced by non-steroidal
anti-inflammatory drugs
Pneumonitis induced by non-steroidal
anti-inflammatory drugs
Penicillamine bronchiolitis

Pulmonary:

Pleural effusion or thickening
Pulmonary hypertension
Pulmonary nodules
Upper lobe fibrosis
Bronchiectasis/chronic suppurative
Fibrosing alveolitis/lymphocytic interstitial
pneumonia
Bronchiolitis obliterans
Cricoarytenoid arthritis

airway obstruction is suggested by a forced expiratory flow at 50% lung volume/forced inspiratory flow at 50% lung volume greater than 4 or forced expiratory volume in 1 second/peak expiratory flow rate greater than 10 ml/l/min. Both these were normal on the original tests. Peak inspiratory flow was low but there is no established normal range and the value was not sig-

nificantly better when measured through the tracheostomy. Intermittent laryngeal obstruction caused by cricoarytenoid arthritis is not emphasised in standard texts and will not be detected by respiratory function tests.

Cricoarytenoid arthritis may be chronic and present for many years without becoming apparent. Its presentation may be acute, and, if not recognised and treated, fatal. Common symptoms such as hoarseness may be absent and simple tests for laryngeal obstruction can give normal results. In rheumatoid arthritis parenchymal lung disease may coexist with cricoarytenoid arthritis. We suggest that the investigation of dyspnoea, even when intermittent, in a patient with rheumatoid arthritis should routinely include laryngoscopy.

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Controversies in Management

This is one in an occasional series of articles examining some of the difficult decisions that arise in medicine

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Department of Health shoots itself in the hip

Why the report of the Advisory Group on Osteoporosis undermines evidence based purchasing

Trevor A Sheldon, Angela Raffle, Iain Watt

The report of the Advisory Group on Osteoporosis represents a step back in the way the Department of Health develops policy on health technologies.¹ It ignores the mechanisms which have been established to provide research input into decision making,² it fails to review the evidence in a systematic way,³ and it recommends clinical policies which are not justified by the available evidence. We can see why the current arrangements within the Department of Health for considering issues related to screening have been described as "wasteful and confusing; they blur responsibility and invite conflict."⁴

Ploy to avoid considering costs and benefits

The advisory group was asked to "establish what information about osteoporosis is available, what research is being conducted and what further work needs to be done, and to report to ministers." In making recommendations about the use of bone densitometry and about the number of machines the report goes well beyond this brief.

What is wrong with the advisory group's recommendations? Few would disagree that the 50% or so of

hip fractures in older women associated with low bone density are a major cause of suffering and a cost to the NHS. Nor would many disagree that bone density measurement is a valuable diagnostic tool for clinicians treating patients with bone disease or that it is important for research. However, the value of bone density measurement to identify patients who could be encouraged to take preventive action (exercise, dietary change, and drug treatments such as hormone replacement therapy) against a fracture which they may or may not suffer more than 20 years in the future is highly uncertain.

The advisory group asserts that "population screening" for osteoporosis is not worth while but that bone densitometry should be used for testing patients likely to have low bone mass. They include in this group women at the time of the menopause in order to aid clinical decision making, and they say that 45% of women have "strong risk factors." Yet if certain groups are known to have low bone density what is to be gained by testing them? If it is not known, then how are the benefits of testing this group any more certain than for the general population? The semantic sidestep whereby widespread testing of healthy people is

described as "not screening" is nothing more than a ploy for circumventing the need to consider the overall potential benefits and costs of widespread testing. By accepting the report's recommendations, the Department of Health is undermining the firm national lead on the evaluation of potential new screening programmes promised by the chief medical officer.⁵

Value of densitometry in risk assessment

What is the evidence that bone density measurement is "essential for clinical decision making" for these groups? There are internationally accepted criteria for evaluating diagnostic health technologies and for reviewing publications on this topic.⁶ Two fundamental conditions must hold: the test must accurately predict patients who could potentially benefit (those who will have a fracture in the future) and there must be a cost effective treatment. Bone densitometry for risk assessment has problems on both counts.

Estimates from a recent systematic review of cohort studies—most of which as yet have only short term follow up—show bone density as rather a poor predictor, with a sensitivity of 38% and specificity of 88% (for 1 standard deviation below the mean cut off) and 9% sensitivity and 99% specificity (for a 2 standard deviation cut off).⁷ Thus even with the cut off for higher specificity (which misses 91% of potential fracture patients) only 56% of people so identified and recommended therapy will in fact be destined to sustain a fracture. In the context of this evidence the advisory group's assertion that bone densitometry is "the best tool available" and that it "provides specific and reasonably sensitive indices of fracture risk" is vague and misleading.

On the second count the report gives little systematic consideration to the nature and quality of the evidence for the effectiveness of interventions. There are, for example, no studies showing that use of bone densitometry in high risk groups results in a reduced incidence of fractures. There are also doubts about the persistence of any protective effect of hormone replacement therapy with age⁸ and after treatment is stopped.⁹

Other fundamental issues—important whether whole population or selective screening is under consideration—are barely considered in the report. These include the requirement for rigorous common standards of analytical performance to ensure that a

test result would be the same independently of where or by whom the test is performed, the reference mean and standard deviations of bone mass to be used in British populations, and the cut off points. In Aberdeen the criteria used resulted in treatment being recommended for 50% of women at the time of the menopause; in other places the equivalent figures are 25% or less.¹⁰ Bone densitometry is also recommended in the report for monitoring therapeutic response. However, because precision of the measurement is low relative to the rate of bone loss, measurements need to be several years apart to be useful in detecting whether treatment was retarding bone loss.

The introduction of a new diagnostic health technology, particularly for prevention, is a complex issue which requires detailed assessment. The advisory group usefully highlights an important research agenda. However, because of the emphasis on bone density testing these aspects were lost on the media. National television news highlighted the fact that other countries invest more in dual x ray absorptiometry machines, and the *General Practitioner* carried the headline, "Officials now favour mass bone screening." Health authorities faced already with funding an alarming list of effective interventions are not likely to find this report particularly constructive. They might be forgiven for wondering whose interest will best be served by recommending the increased purchase of bone densitometry and this back door advocacy of screening—the general public or the equipment and pharmaceutical suppliers?

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Department of Health is fair to patients with osteoporosis

David Barlow, Cyrus Cooper, Jonathan Reeve, David Reid

Members of the Advisory Group on Osteoporosis were shown Professor Sheldon and colleagues' commentary on their report, and this is their response

The Advisory Group on Osteoporosis¹ was not established to advise ministers on health technology; machinery for that purpose is in place and a separate group has been set up to review this rapidly advancing topic. The remit given to the advisory group was to summarise current knowledge about osteoporosis, to detail ongoing research into the subject, and to identify research priorities. The final version was submitted to wide ranging consultation, including review by several representatives of purchasers and providers of health care, by the Standing Medical Advisory Committee of the Department of Health, and by the NHS Management Executive.

The recommendations of the report were: (a) better coordination of services in osteoporosis management, (b) greater availability of bone densitometry facilities for defined clinical indications, (c) provision of these facilities at the discretion of purchasers at a local level,

and (d) the development of guidelines for osteoporosis management through the royal colleges. Of the 86 pages covering this diverse and often complex agenda, Professor Sheldon and colleagues have taken exception to the conclusions articulated in the seven which refer to a clinical bone density service. We infer that they are in broad agreement with most of the report, which covers the definition and epidemiology of osteoporosis, pathophysiology, clinical subtypes, and approaches to prevention and treatment.

Message misrepresented

As the four hospital based physicians who belonged to the advisory group, we are not qualified to comment on the internal mechanisms of the department for establishing research input into decision making about new technologies. However, the report succeeds in