patient is sensitive to wool. These materials are of different thicknesses, so minor adjustments to the fit of the socket can be achieved. Socks must be washed carefully, following the written instructions given; and they should be changed regularly to avoid skin problems.

Dangers

Patients with artificial legs have delayed proprioception and impaired balance. They should therefore be made aware of the danger of tripping over low obstructions, stairs, slopes, and uneven or slippery surfaces. Knee locks, if fitted, should be used in potentially dangerous situations.

General points

If a leg has been amputated application for the mobility allowance and for a disabled car badge should be considered.

It may be necessary to adapt the patient's car. Drivers with artificial limbs should be reminded that the licensing authority must be informed of their condition.

Thought should be given to the provision of other mobility aids, such as walking frames.

Patients of working age who have had a limb amputated need advice about employment, and referral to the disablement resettlement officer may be appropriate.

Useful addresses

The National Association for the Limbless Disabled, 31 The Mall, Ealing, London W5 2PX

The British Limbless Ex-Servicemens Association, Frankland Moore House, 185-187 High Road, Chadwell Heath, Essex RM6 6NA

British Amputee Sports Association, Harvey Road, Aylesbury HP21 9PP

"Reach," The Association for Children with Artificial Arms, 13 Park Terrace, Crimchard, Chard, Somerset TA20 1LA

For Debate . . .

Is a preemployment chest radiograph necessary for NHS employees?

S J JACHUCK, C L BOUND, C E JONES, M BRYSON

Introduction

Is the preemployment chest *x* ray examination—an age old screening practice—destined to disappear?[1]

To minimise cost and prevent unwarranted radiation, the Department of Health and Social Security recommends radiological screening only for a selected group of NHS employees who are at risk of contracting tuberculosis at work.[2] Some hospitals, however, do not attempt to comply even with this recommendation.[3] Not all NHS employees at risk and not all the overseas visitors to hospitals are offered the recommended screening,[4,5] despite the suggestion by the Joint Tuberculous Committee of the British Thoracic Society that all immigrants coming from high risk countries should be screened.[6]

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Hospitals with effective occupational health services offer the screening service to those at risk, but some staff do not accept the screening offered.[3] In view of such an inconsistency in screening practice, we believe it reasonable to ask whether the practice is rational, justifiable, and cost effective.

Objective of the screening

Tuberculosis persists in Britain and is more commonly found in certain sections of the community.[2,7] Health service personnel are at risk of contracting the illness from occupational contact with infected patients or their excreta.[2,8,9] The screening programme is intended to protect NHS employees as well as susceptible patients.[2,6,10] The preemployment chest *x* ray examination is carried out for three reasons:

(1) Early detection of pulmonary tuberculosis among the new entrants to the NHS.

(2) To provide a base line radiological record for those employees at higher risk who require annual chest *x* ray examination.

(3) Interpretation of tuberculin skin reaction.

The preemployment chest *x* ray examination is not, however, mandatory. It is not easy to understand the basis of the DHSS scheme for selection of employees for preemployment screening. If its objective is to protect susceptible patients and fellow NHS employees from contracting the illness from an infected new entrant why should the screening be limited to those in "normal" and "high" risk employment categories and not be offered to those who are in the "minimal" risk employment categories? It is also extremely difficult to define the categories of "normal" and "minimal" risk areas.[11,12]

The DHSS guidance states: "Before anyone is allowed to take up duty in an obstetrics department or to work with children, he or she should provide evidence of a satisfactory chest x ray taken within the previous six months." Surely such a recommendation should include all employees who are associated with children, including ancillary and clinical staff such as anaesthetists?

Review of our experience

In the past 10 years the occupational health department in our district general hospital has offered the DHSS guidance on preemployment radiological screening to all new entrants to the hospital. The total number screened has been 9485. All employees were also screened for evidence of BCG vaccination and the tuberculin skin test (Heaf) was carried out in all individuals who had no BCG scar and had no record or recollection of having had tuberculin skin test. BCG vaccination was given to those with grade 1 or no reaction to Heaf test. Those with grades 3 and 4 Heaf reaction were followed up with annual chest x ray examinations for two years. Those with negative or grade 1 Heaf reaction were prevented from working in normal and high risk areas until six weeks after BCG vaccination.

Abnormalities reported in 1000 chest x ray examinations for preemployment screening

Case No	Sex	Age (years)	Report	Remarks
1	F	34	Resection of left 8th rib, pleural thickening	Not declared in questionnaire; not detected in assessment
2	F	43	Pleural adhesion left base	Not declared in questionnaire; not detected in assessment
3	M	29	Large bulla in lingula	Not declared in questionnaire; not detected in assessment
4	F	34	Opacity left upper zone, possible tuberculosis in past	Not declared in questionnaire; not detected in assessment
5	F	27	Left ventricular hypertrophy	Found to be hypertensive
6	F	37	Opacity right base	Not declared in questionnaire; not detected clinically
7	F	43	COAD	Declared in questionnaire
8	M	24	Prominent pulmonary outflow tract	Not declared in questionnaire; (had seen a cardiologist, but not stated in questionnaire)

In a prospective study the reports of 1000 consecutive chest x ray examinations carried out for preemployment screening were reviewed and the details of abnormality were summarised (table). The 1000 individuals included 149 men (134 aged 18-35, 15 over 35) and 851 women (672 aged 18-35, 179 over 35). The cost of 1000 examinations at £7.49 per x ray was £7490. The total number of abnormalities reported were eight (0·8%), and the cost for detecting each radiological abnormality was found to be £936. Only one abnormality was reported to be related to tuberculosis infection in the past. The abnormalities recorded in these eight cases did not affect their selection for employment and only one person (case 5 in the table) benefited by receiving treatment for hypertension which was detected clinically. Thus the investigation was both unrewarding and not cost effective, in keeping with the observation made in Australia.[1]

Our recommendations

Routine preemployment chest x ray examinations for NHS employees is an unproductive and uneconomical exercise which does not justify subjecting the employees to unwarranted radiation. We suggest that evidence of BCG vaccination and the tuberculin skin test should instead be used for screening all NHS employees to control tuberculosis. Those without evidence of a BCG vaccination and with a grade 1 or negative reaction to Heaf test should be radiologically screened for evidence of pulmonary tuberculosis. A chest x ray examination should also be recommended for all employees with grade 3 and 4 Heaf reactions, and those employees should not work in paediatric or maternity departments during their two years surveillance or until the completion of antituberculosis prophylaxis.[8] This will reduce the cost and risk of unwarranted radiation by almost 80% as chest radiography will be needed for only 20% or so of people who have neither had BCG nor evidence of tuberculin skin test. This screening practice could be extended to those working in higher risk areas in the NHS after a basal preemployment chest x ray examination. Clarification of DHSS guidelines may result in better compliance of recommendations in the NHS.

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ANY QUESTIONS

A 22 year old student claims to be allergic to tetracycline, penicillin, co-trimoxazole, and erythromycin. Tetracycline made her face swell. Is there a laboratory test to confirm that she is actually allergic to all these drugs?

There are no totally reliable tests for allergy to antibiotics, probably because the allergic reactions that occur are directly due not to the small antibiotic molecules themselves but to some form of protein antibiotic combination. In the case of penicillin, however, skin tests (or serum radioallergosorbent tests) with the major determinant penicilloyl polylysine and a minor determinant mixture can detect over 99% of patients in whom there is a danger of an immediate reaction.[1-3] People who are sensitive to penicillin are four times more likely to react to cephalosporins than the population at large but, with this exception, there is no good evidence that multiple antibiotic sensitivities are due to cross reacting antibodies. The only practical course to follow where a previous reaction has been suspected is to start with small trial doses, avoiding the antibiotic entirely if the reaction was severe or if it produced mucocutaneous eruptions and systemic symptoms (Stevens-Johnson syndrome).

Even the use of test doses cannot prevent the occasional later reactions to breakdown products of bacteria (as in meningococcal infections[4]) or to the antibiotic itself. On the other hand, rashes which are provoked by ampicillin or other antibiotics in glandular fever are due in part to transient changes in the patient's immune responses caused by the Epstein-Barr virus and are not a contraindication to further use of the same treatment.—M H LESSOF, professor of medicine, London.

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