Occupational disorders and their diagnosis

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There are government targets for reductions in the incidence of work-related diseases. Legislation regarding control of workplace exposures will be described with specific reference to chemicals. Knowledge of such exposures is key in diagnosing whether a condition could have an occupational cause.

Several government bodies concerned with occupational health joined together to produce a joint strategy document *Securing Health Together* (Health and Safety Commission, 2000). It quotes a survey (Jones and Hodgson, 1998) suggesting that over 2 million people in 1995 were suffering from illness that they reported as being caused, or made worse, by work. Based on these figures, the cost to society of work-related illness that year in Great Britain was estimated to be £10 billion. The government targets include a 20% reduction in the incidence of work-related ill-health by 2010 (Health and Safety Commission, 2000).

It has been said that 'occupational disorders do not take lives, they merely ruin them' (Kantor, 1997). Although this was in the context of occupational psychiatric disease, the same could be said of much occupational disease, given that musculoskeletal conditions, mental ill-health and skin disease are the most prevalent problems (Cherry and McDonald, 2002). On the other hand, the Health and Safety Executive (HSE) estimate the proportion of cancer deaths with occupational causes to be 4% in Great Britain (HSE, 2002).

Asthma can be disabling and even fatal. Asthma of occupational cause has been estimated to account for between 10 and 15% of new or relapsed cases of asthma in adult life in Western Europe and the USA (Newman Taylor, 2002).

WHAT OCCUPATION DOES HE FOLLOW?

Bernardino Ramazzini (1633–1714), regarded as the father of occupational medicine, said that he would venture to add to the list of questions one asks a patient: 'What occupation does he follow?'

This question remains relevant today, and one hopes that medical students will long continue to include it in their armoury. If one is to establish an occupational link with a patient's condition, one must know something about the patient's work. However, although it is an important first step, a job title in itself is rarely sufficient. For example, the title 'process worker' does not tell us to what hazards he or she may be exposed. In terms of diagnosing an occupational disorder, the most relevant job characteristic will be the exposure history: what hazards are present, is the worker exposed to these, and if so, what is the frequency and/or magnitude of exposure?

CONTROL OF EXPOSURE

The best way to prevent occupational disease is to prevent exposure to the hazards. There is legislation that aims to reduce and control such exposure. The Health and Safety at Work Act 1974 places on employers a general duty to protect the health, safety and welfare of their employees so far as is reasonably practicable. Under the umbrella of the Health and Safety at Work Act, several regulations specifically address workplace hazards and risks, and require employers to carry out risk assessments.

This article will now consider occupational diseases resulting from chemical exposures. In this context, the Control of Substances Hazardous to Health (COSHH) Regulations 2002 (originally 1988) are particularly relevant. These regulations were recently revised, and the new version has been in force from November 2002. 'Substances hazardous to health' are biological and chemical agents (but exclude lead and asbestos, which are subject to separate regulations). Examples of such substances in clinical practice would include hepatitis B and C, gluteraldehyde and latex (Litchfield, 1995).

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Classical examples in other work settings include vinyl chloride monomer causing hepatic angiosarcoma, benzidine and 2-naphthylamine causing bladder cancer, toluene di-isocyanate causing occupational asthma, and dioxins causing chloracne.

In order to prevent or reduce the risk of such occupational diseases arising out of working with such hazards, the COSHH regulations require the employer to first assess the risk, by taking into account such factors as how much of the substance is handled, the level and duration of any exposure, and the working practices and controls. Where reasonably practicable, the preferred option is to substitute the substance with a less hazardous one. When this is not feasible, the other options are, in decreasing order of preference, enclosing the process, providing adequate ventilation systems, or as a last resort, providing personal protective equipment.

Where the COSHH assessment indicates a significant risk, monitoring of the levels of the substance in air or the person's breathing zone is required. When the personal exposures of identifiable employees are obtained, these records must be kept for at least 40 years. Similarly, if the assessment indicates a need for health surveillance, the health records must be kept by the employer for at least 40 years.

RELEVANCE TO CLINICIANS

Clinicians faced with a case they suspect to be occupational in aetiology, who are wondering whether there is any evidence to confirm their suspicions, would benefit from obtaining such exposure history from the employer. The COSHH 'health record' contains no confidential clinical details, and is usually held by the health and safety or human resources department in smaller companies. Larger companies with occupational health provision will in addition have a set of clinical records containing, for example, the actual results of biological monitoring, such as urinary or serum levels of the substance or its metabolites. Occupational physicians will be happy to share such information with their clinical colleagues, with the patient's consent.

It is likely that diagnoses of occupational disease would be more accurate with this information. There was, for example, a process worker who was given the diagnosis of 'nasal septum perforation caused by chromium', presumably because the patient had mentioned that he handled small amounts of chromium compounds. When it was pointed out that it was trivalent, and not hexavalent, chromium that he came into contact with, the diagnosis was revised. That situation had been thoroughly evaluated by the site occupational physician and hygienist (chemist specializing in assessing and monitoring such hazards), as a health surveillance programme including nasal inspections would have been implemented had this been hexavalent chromium.

IMPORTANCE OF EARLY DIAGNOSIS

It is important to diagnose a case of occupational disease accurately and as early as possible, because removal of the patient from exposure to the causative agent is usually a critical feature of managing the condition successfully. In occupational asthma, for example, the shorter the period of exposure after symptoms develop, the better the prognosis (Park and Nahm, 1997).

Another benefit of identifying occupational disease early is that this may protect other potentially exposed workers. Once employers have been informed of the diagnosis of an occupational disease, in many cases they are legally required to inform the HSE, under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995. However, whether they receive a visit from the HSE inspector or not, they should review the working practices and environment to further control the relevant exposures, i.e. they should review their risk assessments. They may find, for example, some failure of a control mechanism, such as the local exhaust ventilation. This investigation, and implementing the corrective actions, is therefore likely to prevent the development of that occupational disorder in other workers.

CONCLUSION

Clinicians can significantly contribute to reducing the incidence of occupational disease. Early diagnosis is essential, but this is more likely to be accurate if information on the actual exposures is obtained. The latter should be available from employers, who are legally required to have carried out at least COSHH assessments. The most appropriate point of contact for clinicians would be the occupational physician, or the health and safety manager or human resources manager where there is no occupational health provision.

There is, of course, one workforce that is potentially exposed to glutaraldehyde, formaldehyde, latex, cytotoxic agents and anaesthetic gases, to name a few of the hazards they face. The same principles of prevention

and control apply, but when the control measures fail, early diagnosis of the condition can reduce the personal suffering, and protect other work colleagues. Protecting the UK's largest workforce in this way may help society in more ways than one.

In order to diagnose occupational disorders, Ramazzini's enquiry 'what occupation does he follow?' remains as relevant today as it was in the 17th century. However, in order to make an accurate diagnosis, one should also enquire: 'Is there evidence of exposure to the relevant hazard? And if so, what is the level of that exposure?' HM

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KEY POINTS

- In addition to the human suffering, occupational disorders place a huge burden on society.
- The government has set a target of a 20% reduction in the incidence of occupational diseases by 2010.
- If an occupation involves potential exposure to chemical or biological hazards, there is specific legislation that applies, namely the Control of Substances Hazardous to Health Regulations 2002.
- These regulations require health records to be kept for at least 40 years, along with any personal monitoring data. These can be a useful source of information about relevant workplace exposures.
- Employers are required to report many occupational diseases to the Health and Safety Executive under Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995.
- Early identification of occupational disease can protect other workers, as well as helping with the individual case management. By diagnosing occupational disorders early and accurately, clinicians can help reduce their incidence.
- In order to diagnose occupational diseases, it is self-evident that the patient's occupation must be known. Ramazzini's question 'what occupation does he follow?' remains relevant today.
- However, for an accurate diagnosis to be made, in addition to the job title, one should ask: 'Is there evidence of exposure to the relevant hazard? And if so, what is the level of exposure?'