Cerebral symptoms from mobile telephones

EDITOR—Disturbing symptoms from the use of mobile telephones are being increasingly reported and have been described by Hocking.1 One of us (RAFC) has also collected a series of such cases but has not published them to date.

Many of these cases are characterised by symptoms of dizziness, disorientation, nausea, headache, and transient confusion. Such symptoms might be expected to arise from unilateral stimulation of the vestibular apparatus. This could occur from the direct action of the radio waves on the endolymph or the hair cells in the semicircular canals or from convection currents set up in the external auditory meatus from the heat of the mobile phone. Most patients complain of a sensation of heating round the ear, often accompanied by reddening of the skin. Blanks et al2 have shown that there is significant variability in the precise orientation of the semicircular canals, which may result in a predilection to greater thermal stimulation in some people. Because mobile telephones tend to be used in noisy situations, the user holds the instrument much more tightly to the ear than he does a normal phone.

In our opinion there is good theoretical and clinical evidence to support the hypothesis that some people, perhaps 5% to 8% of mobile phone users, have transient symptoms of vestibular disturbance associated with their use. We think that the hypothesis should be tested experimentally as the number of people affected will increase as use of mobile phones increases. It is also important to confirm our hypothesis experimentally to find the mechanism underlying vague symptoms of disorientation and to emphasise that these symptoms do not indicate any greater risk of developing brain cancer, whether or not mobile phones are ultimately shown to have any association with cerebral tumours.

The research required is relatively simple and we would suggest that, in the light of widespread public concern, this work should be undertaken as a matter of urgency. There is a need to confirm our hypothesis experimentally and we would suggest that, in the light of the work of the National Research Council (NRC) to examine the research base on work-related musculoskeletal disorders, this was later followed by some deliberations of the steering committee. The report of the steering committee and the proceedings and scientific papers from the workshop are presented in this monograph.

The NRC workshop, which was attended by leading scientists from the fields of orthopaedic surgery, occupational medicine, public health, and human factors deliberated over several major topics: the biological responses of muscles, tendons, and nerves to biomechanical stressors; the biomechanics of work stressors; the epidemiology of physical factors; non-biomechanical (psychosocial) factors that might affect the musculoskeletal system; and possible risk mitigating interventions. Under each topic there were commissioned presentations, which are reproduced in this monograph, together with some written and oral responses and a considered overview.

The committee’s efforts were focused in particular towards answering seven specific questions posed by Congressman Robert Livingston. These concerned the identity, diagnosis, and classification of such disorders, their causes, incidence, and prevention, and the major areas of research uncertainty. (Needless to say, not all of the questions could be answered confidently!)

In reviewing this book, I could not help reflecting on the role of workshop proceedings and who might wish to buy such a summary; also, whether the book represented an important advance on existing major competition—such as the comprehensive critical review by NIOSH, or the detailed Work-related musculoskeletal disorders: a reference book for prevention, published by Taylor and Francis. The proceedings of meetings can be a mixed feast, with tasty new morsels, meaty dishes, and stale fare served up together. The best of offerings have the following recipe: one conscientious editor, a peer review process, and a liberal helping of original research papers, written up as formally and thoroughly as they would be when freely submitted to a journal in open competition. The compilation that occupies the second half of this book does not match this recipe, but does represent a series of interesting reviews and synopses in important areas of research interest.

Of course the scope of the book is broader in seeking to distil and summarise, rather than to break new ground, and in this respect it partially succeeds. But the advance is a fairly small one. Those with an interest in work related musculoskeletal disorders will want to read this book, but perhaps not to possess it. One section is of particular interest to them, concerns invited experts’ views on the adequacy and limits of the NIOSH review already mentioned, which, paradoxically, represents a more essential addition to the occupational physician’s library.

Keith Palmer

OCCUPATIONAL MUSCULOSKELETAL DISORDERS, second edition

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BOOK REVIEWS

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the clinical chapters (on the neck, back, upper limb, and lower limb) provide little information on putative occupational risk factors and the epidemiological evidence surrounding these. As befits a textbook that reflects the American care model in occupational health, there are lengthy passages on therapeutics such as the side effects of salicylates—and information on homeopathy, osteopathy, and chiropractice; but the bias is towards the clinical rather than the occupational health management of musculoskeletal disorders, and this too was something of a surprise and a disappointment. Fitness for work and its assessment is not considered in a meaningful way.

The question is whether the good outweighs the bad. You pay your money and take your choice: if you want a healthy dose of occupational medicine, clinical rather than the occupational health perspective, such as the side effects of salicylates—and information on homeopathy, osteopathy, and chiropractice, you should look elsewhere.

KEITH PALMER


Among the most serious dangers to public health is air pollution. It is at least as important as cancer and vascular disease as a cause of death, illness, and lost human potential, it is a major source of environmental damage, and it seems to be an inescapable companion of industrial progress. In the 19th century we measured a country's power by its production of sulphuric acid, perhaps we should now do so by the acid particles breathed by its citizens? After the very obvious air borne disasters of the 1930s due to fogs in Britain, Mexico, and the USA, there was a rapid legislative and technical response to reduce obvious sources of pollution, and then medical and scientific attention fell away until the growing menace of asthma and other respiratory diseases, coupled with our better ability to detect and measure air borne substances showed that the problems were as serious as ever, even if more subtle in their form and impact.

This book rightly claims to be the first attempt to produce a comprehensive account of the sources, mechanisms, physical behaviour, and health effects of air pollution, and of approaches to its regulation, including forays into economics, trade-offs between risk and benefit, and communication about risk with the public. There are 68 authors from Europe and the Americas, all of whom are making active contributions to understanding this huge area. Considering their research interests, they have been surprisingly well marshalled by the four distinguished editors into the 116 chapters of the book: general, industrial, and occupational.

The general approach has been encyclopaedic as the nine major sections cover the history of air pollution, physical meteorology, atmospheric chemistry, the physical geography of air pollution related to its main sources, the measurement of personal exposure, health effects in humans and in laboratories, details of major chemical and particulate pollutants, the estimation of health and financial impacts and approaches to regulation including national and international setting of standards for air, and two-way communication with the public. The text is accompanied by many clear diagrams and graphs, and several helpful photomicrographs, and every chapter carries many pertinent and recent references.

The strengths of this book are its breadth and clarity, and so its value both as a source of analytical information and conclusions, and as an entry point into the detailed research literature. I particularly appreciated the information about meteorology, atmospheric chemistry, and surveillance and measuring strategies for the biologist, and the focused accounts of epidemiology and respiratory physiology, defences, and diseases, which should inform the physical scientist about the subtle difficulties of biology. Its weaknesses are those of any synoptic work—the reader must have some background knowledge to understand the depths of the knowledge presented, and the need for broad coverage prevents the inclusion of extensive detail. The balance seemed correct to me in most respects, as the references always point to original sources that could be used as an alternative or critical perspective or to further sources of even more detailed and recent information. The book is much more than a list of techniques and regulations. It is also a major reference source in its own right, providing basic and practical information about the actions required to reduce the risks of exposure from medicines to foods and air pollutants.

The presentation is clear, there are many useful diagrams and tables, and the authors have somehow been persuaded to write or to be edited into producing highly readable text, clear and mostly concise, even when dealing with the more difficult topics—such as PKPD modelling, GLP, and ICH.

The weaknesses are those that are inevitable in any multi-author work, especially the concentration on national approaches in some chapters, when international differences are better recognised in others, and the difficulty that some authors must have had of balancing personal enthusiasm against more general views that other aspects are more important.

Overall, although some can already foresee the demise of the printed book, this is a balanced and comprehensive account of what toxicology is, how to use and interpret its findings, and of its scientific and clinical base. It is equally a well presented guide to the activity of many substances selected as type examples, and to further sources of more recent or alternative information if further data are required.

It is an effective reference source, it will be a valuable aid to teaching toxicologists, allied scientists, physicians, and those who regulate, are regulated, or who expect to be protected from toxicity. Like all monographs it belongs in libraries, but it would be no less helpful in clinics, courts, and in laboratories.

ANTHONY D DAYAN