Hearing and balance disorders: a new approach

Linda Luxon, on behalf of the Working Party on the Provision of Audiological Medicine

Linda Luxon
BSc MBBS FRCP,
Chair, Working Party on the Provision of Audiological Medicine; Professor of Audiological Medicine, University of London; Consultant Audiovestibular Physician, National Hospital for Neurology and Neurosurgery, London

Clin Med 2007;7:318–20

Hearing loss and symptoms of disequilibrium are hidden handicaps with significant public health and socioeconomic consequences, in addition to a marked personal impact on the quality of life. The recent House of Commons Health Committee report, *Audiology services: fifth report of session 2006–7*, highlighted that hearing and balance services have not been seen as a priority and that primary care trusts have failed to give them the attention they deserve.[1] The need for improved services has also been stressed by both the voluntary sector:

> *deaf, deafened and hard of hearing people are vulnerable to isolation and depression.*
>
> Royal National Institute for the Deaf

and patient support groups:

> *we have realised that vestibular disorders are so often misunderstood by the general public, as well as health professionals, that we feel the need to raise the understanding and awareness of such a disabling condition.*
>
> www.labyrinthitis.org.uk

Hearing impairment is the most common sensory disability worldwide. The World Health Organization has estimated that approximately 250 million people suffer from a disabling hearing loss[2] and has described deafness as a non-communicable disease, that is:

> *a cause of enormous human suffering and a threat to the economics of many countries…and constitutes a major contributor to the burden of avoidable risk and disease.*[3]

In the UK, 17% of the adult population suffer from a significant hearing loss and this figure rises steeply with age (80% by 80 years).[4] In addition, 40% of the population aged over 40 years has experienced symptoms of dizziness and/or imbalance and these symptoms represent the most common reason for visits to a doctor by patients over the age of 65.[5] The changing demographics of the population in developed countries will result in even more patients requiring care for hearing and balance disorders.

In the UK, hearing and balance services have developed in an *ad hoc* manner, dependent upon local expertise, interest and resources. The services are variously provided by ear, nose and throat (ENT) surgeons, audiovestibular physicians, audiologists, neurologists, geriatricians, paediatricians and physiotherapists, depending upon the precise complaint and availability of professionals. The complexity of hearing and balance physiology is such that pathologies in a range of systems may result in dysfunction. Thus, a systematic medical approach is required to identify the correct disorder and differentiate otological conditions from systemic illness with auditory and/or vestibular manifestations. In the last two decades, there have been significant advances in diagnostic techniques, the understanding of auditory and vestibular pathophysiology and both pharmacological and rehabilitative interventions. The knowledge to diagnose, treat and rehabilitate auditory and vestibular disorders is now such that for the majority of patients the prognosis would be good if appropriate services could be accessed. Nationally, however, only a handful of services are able to provide sophisticated investigations, rehabilitation and management of the general medical, neurological and otological conditions which give rise to hearing and balance disorders.

The majority of patients are referred to ENT and neurology, although only 5% of hearing and balance disorders require surgical intervention or are the result of central nervous system pathology. These specialties are recognised by the Department of Health to be overburdened. Appropriate medical expertise may not, however, be available to patients presenting with audiovestibular symptoms in a non-medical audiology service, leading to limited diagnosis and treatment of relevant medical conditions and inappropriate, unnecessary and expensive investigations and referrals. Additionally, there is a good evidence base to support optimal hearing and balance services being provided within the context of a broad-based, multidisciplinary team.

The public health and socioeconomic costs of auditory and vestibular dysfunction have not been calculated, but certain facts are well documented. The cost benefit of early identification and rehabilitation of patients with profound hearing loss enabling full integration into education, society and a range of occupations is well recognised. Moreover, adult auditory rehabilitation programmes combined with hearing impairment prevention programmes, for example in noisy industry, are also cost effective in enabling adults to continue functioning both in the workplace and socially.

Community-based population studies have documented that approximately one quarter of patients complaining of dizziness at the primary care level

lose time from work, or report some disability interfering with everyday life. Moreover, symptoms of dizziness and unsteadiness are reported to be one of the most common causes of loss of time from work, failure to return to work after minor head injury and, in addition, are a common presenting symptom of a plethora of general medical disorders. Nonetheless, most doctors do not have a well-defined diagnostic strategy for this symptom complex leading to unnecessary healthcare costs. The delay in diagnosing the most common vestibular syndrome in older patients (benign paroxysmal positional vertigo) has been estimated to lead to an additional cost of €254 per patient. Moreover, the US National Institute of Health has reported that a patient with peripheral vestibular pathology is seen by, on average, 4.5 physicians before receiving a correct diagnosis and similar findings have been documented in a UK audit (Drs Snashall and Raglan, personal communication). Frequently, non-specialist referrals are associated with repeated medical attendances and non-contributory, unnecessary and expensive investigations such as magnetic resonance imaging.[6] In people aged over 60 years, the cost of falls, which are frequently associated with balance disorders, to the NHS and social services in 1999 was £981 million.[7]

The national shortcomings of the audiovestibular service is partly the result of limited training opportunities in both undergraduate and higher specialist training programmes for general practitioners, physicians and paediatricians. In addition, there is no coordination of training between the various professional groups currently providing the service and thus, no common core standard of knowledge and competencies. Moreover, the staff to population ratio across each of the medical disciplines is significantly less than in comparable European countries, for example in the UK there is one audiovestibular physician per million population, while in Denmark the ratio is 1:125,000 and in Sweden 1:135,000.

Since 2000, both government and third sector initiatives have sought to redress the limited access, availability and geographical inequality in the provision of hearing and balance services in the UK through a range of initiatives including the Modernising Hearing Aid Services programmes for both adults and children,[8] development of the graduate audiology profession, the Action on ENT programme specifically considering audiology and balance services, the National Audiology Plan[9] and the most recent Health Committee Audiology Services Report.[1] Undoubtedly, these initiatives have raised the profile of hearing and balance services and have served to highlight the urgent need for more integrated, efficient working practices, providing high calibre, rapidly available services closer to patients' homes.

Set against this background, the Royal College of Physicians established a multidisciplinary working party which has challenged the current provision of hearing and balance services.[10] A restructured, multidisciplinary, networked model of care for the provision of audiovestibular care, providing high quality, cost effective services delivered primarily in the community, but with flexible and rapid access to secondary and tertiary levels of specialised investigation and management, is proposed. The need for a more focused workforce, with increased numbers of audiovestibular physicians and appropriately trained audiovestibular paediatricians, working alongside graduate audiologists has been highlighted. The need for broader education has been stressed, with improved training in audiovestibular medicine across all levels and disciplines of medicine from the undergraduate level to postgraduate primary care and specialists. The need to integrate relevant training and assessment of competencies across the range of disciplines providing medical care for this group of patients has been recognised in order to meet the requirements of the National Service Frameworks for children,[11] older people[12] and those with long-term conditions.[13] It is hoped that the working party report will bring important cost-effective, healthcare improvements with quality of life benefits for a large group of patients many of whom are vulnerable and currently disadvantaged in a healthcare system that does not recognise their need.[10]

Members of the Working Party

Linda M Luxon, Professor of Audiological Medicine, University of London, UCL Institute of Child Health and Consultant Audiovestibular Physician, National Hospital for Neurology and Neurosurgery, London; **Foluke Ajayi**, Healthcare Science Professional Officer, Department of Health, London; **Lesley Batchelor**, Consultant Community Paediatrician in Audiology, Macclesfield District General Hospital; **Michael Gleeson**, Professor of Otolaryngology and Skull Base Surgery, National Hospital for Neurology and Neurosurgery, London; **Tim Griffiths**, Professor of Cognitive Neurology, University of Newcastle; **Gordon Hickish**, General Practitioner, Christchurch, Dorset; **Sue Hill**, Chief Scientific Officer, Department of Health, London; **John Irwin**, Consultant Audiological Physician, Ninewells Hospital, Dundee; **Rob Low**, Consultant Clinical Scientist (Audiology) and Director of Audiology Services, Royal Sussex County Hospital, Brighton; **Deirdre Lucas**, Consultant in Audiovestibular Medicine, Nuffield Hearing and Speech Centre, Royal National Throat Nose and Ear Hospital, London; **Ian McDonald**, Emeritus Professor of Clinical Neurology, Institute of Neurology; **Peter Overstall**, Consultant in Geriatric Medicine, Age Care, County Hospital, Hereford; **Ewa Raglan**, Consultant Audiological Physician, Department of Audiology and Audiological Medicine, Great Ormond Street Hospital for Children and St George's Hospital, London; **Sheila Shribman**, Consultant Paediatrician, Immediate past Registrar RCPCH; **Amy Skipp**, Head of Research, the National Deaf Children's Society; **SDG Stephens**, Honorary Professor and retired Consultant Physician; **Kevin Wyke**, Director of Professional Development, British Academy of Audiology.

References

1 House of Commons Health Committee. *Audiology services: fifth report of session 2006–7*. HC392. London: Stationery Office, 2007.
2 World Health Organization. *Guidelines for hearing aids and services for developing countries*, 2nd edn. Geneva: WHO, 2004.
3 World Health Organization. (2005). *Disability, including prevention, management and rehabilitation.* Resolution of the 58th World Health Assembly. Geneva: WHO, 2005.
4 Davis A. *Hearing in adults*. London: Whurr Publishers, 1995.
5 Neuhauser HK, von Brevern M, Radtke A *et al.* Epidemiology of vestibular vertigo: a neurotologic survey of the general population. *Neurology* 2005;65:898–904.
6 Halmagyi GM. Diagnosis and management of vertigo. *Clin Med* 2005;5:159–65.

7 Scuffham P, Chaplin S, Legood R. The incidence and cost of unintentional falls in older people in the United Kingdom. *J Epidemiol Community Health* 2003;57:740–4.
8 Modernisation of Children's Hearing Aid Services (MCHAS) and National Deaf Children's Society (NDCS) *Quality standards and good practice guidelines: transition from child to adult services* . London: MCHAS, NDCS, 2005.
9 Department of Health. *National action plan for audiology services: improving access to audiology services in England.* London: DH, 2007.
10 Royal College of Physicians. *Hearing and balance disorders: time to listen.* Report of a Working Party. London: RCP, in press.
11 Department of Health. *National Service Framework (NSF) for children, young people and maternity services.* London: DH, 2004.
12 Department of Health. *National Service Framework for older people.* London: DH, 2001.
13 Department of Health. *National Service Framework for long term conditions.* London: DH, 2005.