Hearing loss is an important health and social problem in general population. Epidemiological studies suggest that 12.7% of Americans 12 years and older had bilateral hearing loss from 2001 through 2008, and this estimate increases to 48.1 million or 20.3% when also including individuals with unilateral hearing loss. About 8 million Italians (12% of the whole population) suffer from hearing disorders, more than half a million of whom are adults with severe deafness and subsequent social handicap.

Hearing loss is the third most prevalent chronic disease in the elderly, preceded only by arthritis and hypertension. It is estimated that hearing loss which is greater than 25 dB affects 37% of adults between 61 and 70 years of age, 60% of people aged between 71 and 80 years, and over 80% of those aged over 80 years. More than 90% of hearing impaired elderly have a sensorineural hearing loss, which gradually evolves symmetrically and which involves mainly high frequencies. This last condition is commonly defined presbycusis. The elderly may also experience conductive hearing loss, as in the case of chronic ear infections or otosclerosis, or sensorineural hearing loss of other etiologies (eg. Sudden hearing loss).

Such people may not notice mild to moderate hearing loss because of its insidious onset and its progressive nature or because it does not cause difficulties in moderately noisy environments. In particular, it is estimated that only 20% of people over 65 years with moderate to profound hearing loss actually realize to be hearing impaired.

An important recent research topic is represented by the correlation between hearing loss and cognitive impairment. It is now well know that hearing loss is independently associated with accelerated cognitive decline and incident cognitive impairment in community-dwelling older adults. Actual studies are investigating the potential benefits of an effective prosthetic treatment of presbycusis on cognitive functions.

The recognition of a disabling hearing loss is the prerequisite of therapy that aims at improving communication, cognitive and emotional functions.

However, despite the potential benefits on the quality of life of patients and their families, the lack of adherence to therapy is very common. The reasons are to be found not only in a low initial perception of the hearing loss, but also in the disinclination to the constant use of prosthetic aids, in the excessive expectations, in immediately not satisfactory results, in the high costs and in the negative social stereotypes still associated with the use of hearing aids.

Physicians, particularly audiologists and otolaryngologists, should therefore play an important role in giving advice to hearing-impaired elderly people. In fact, in order to be effective, treatment strategies must be individualized and focused on individual patient characteristics.

The therapeutic approach to the hearing loss should first aim to solve any cause of conductive hearing loss also in the elderly. In fact, a potentially reversible cause of conductive hearing loss can limit the performance of conventional hearing aids when added to presbycusis. For this reason, medical conditions, such earwax or chronic effusive otitis, or surgical conditions, such as chronic otitis media or otosclerosis, should be solved before any conventional prosthetic treatment.

Traditionally the first prosthetic strategy consists in employing conventional hearing aids. There are various types of hearing aids – behind the ear (BTE), in the ear (ITE), or completely in the canal (CIC) –, but the choice among these models is often made according to the patient’s preferences of use and his/her aesthetic sense, rather than for audiological reasons.
Some practical problems with conventional hearing aids reported by patients are the low comfort at the level of the external acoustic meatus, excessive difficulties in the daily management of the prosthesis, the initial difficulties of adjustment and the presence of possible additional noise.

The result is that only 25% of candidate patients makes use of conventional hearing aids, whereas up to 30% of them do not use such aids. The lack of use of hearing aids correlates neither with age, nor with the degree of hearing loss, nor with the level of education 8.

In well-motivated patients but with poor compliance with conventional hearing aids, surgically implantable prosthesis can be proposed. These ones provide audiological results comparable to conventional hearing aids and provide greater patient's satisfaction. In particular, in the presence of predominantly conductive hearing loss, the implantable bone conduction prosthesis should also be considered the first choice of treatment in the elderly 9.

In those elders who continue to have poor verbal comprehension despite a conventional prosthetic treatment, the increasing scientific evidence attributed to the cochlear implant a prominent role.

Despite the long duration of deafness, the age-related degeneration of the spiral ganglion cells and central auditory pathways and the potential learning difficulties in elderly patients, virtually all studies reported in the literature have shown that the cochlear implant improves auditory performance, communication skills, confidence and social interactions in the geriatric population 10.

Studies to evaluate the benefit/cost ratio have shown that the cochlear implant is a beneficial intervention also in older patients, despite a shorter life expectancy (and, consequently, a reduced duration of use of the device) 11.

From the surgical point of view, the age does not affect the operating time, the type of surgery or duration of hospital stay. The surgical complication rates are comparable between older and younger cochlear implant receivers. The general state of health seems to be the best predictor of medical complications rather than age alone, although in general patients aged over 80 years are more likely to present non-surgical complications, such as cardiac arrhythmia, delirium, urinary incontinence or retention (2-4%). The result is that advanced age alone is not a contraindication for cochlear implantation, if an accurate assessment of comorbidities before surgery is performed 12.

This concept of a general nature can be extended to all of prosthetic or otologic surgery aimed at restoring a proper hearing threshold in the elderly.

In conclusion, now there are proven tools for management of every kind and degrees of hearing loss in the geriatric population. In order to undertake an adequate therapy, the following prerequisites are required: the resolution of clinical conditions whose medical or surgical correction can optimize the prosthetic treatment of hearing loss; the knowledge of correct indications of conventional and surgically implantable hearing aids currently available; a targeted rehabilitation therapy with the constant monitoring of the results.

References