

The Auditory Screening for Workers who are Exposed to Noise and Ototoxic Substances

Maci L^{1*} and Tavolaro M²

¹Otorhinolaryngology Expert in Legal Medicine Centres, I.N.A.I.L. of Lecce, Brindisi – Via Umberto, 1°, 28 – 73012 Campi Salentina (LE) – Italy

²First level manager of the Legal Medicine Centre I.N.A.I.L. de Lecce

***Corresponding Author:** Maci L, Otorhinolaryngology Expert in Legal Medicine Centres, I.N.A.I.L. of Lecce, Brindisi – Via Umberto, 1°, 28 – 73012 Campi Salentina (LE) – Italy.

Received: February 28, 2019; **Published:** March 11, 2019

The modest and surely incomplete aim of this work is to propose an audiological test dedicated to workers co-exposed to noise and ototoxic substances, after determining different categories at risk.

Keywords: *Citrullus lanatus; Proximate; Phytochemicals; Antidiarrhoea; Loperamide; Hydrochloride*

Ototoxicity is an example of controlled selective toxicity to an organ. An ototoxic agent may be defined as a substance that may cause alteration functional or cellular damage of the inner ear especially of the cochlea or neurons nodes and eighth cranial nerve or system vestibular. Ototoxicity of solvents and possible synergy with noise poses a problem for environmental prevention professional because almost all sectors of activity (building, chemistry, metallurgy, agriculture, etc.) are affected by this problem.

On the other hand, substances that alter hearing and balance, acting mainly at trunk level or along the central auditory trajectories, are considered as neurotoxic. For the neurotoxic effect of solvents on the system central nervous system (CNS) and peripheral (S.N.P.), a damage to neurosensory cells and nerve endings at cochlea level has been suspected. CNS lesions induced by solvents are also of a more central alteration. An aspect special of ototoxic substances is that they can interact with each other during simultaneous use. “*corpora non agunt nisi fixata*” said an old axiom of the pharmacology department. The chemical agents responsible for pathologies the ear can be classified as gas (gas, vapours), particles or

aerosols (dust, smoke, fog). The pathophysiological mechanism of such disorders may be allergic, irritating or toxic. absorptive pathways, after attaining the inner ear by the airway is systemic, lymphatic, by cephalo-spinal and osmotic fluid through the eardrum chest. Auditory damage occurs if the exposure these substances occur at concentrations sufficiently high; these concentrations may be less than those for which the substance is considered toxic under others aspects. The ototoxicité of chemicals is amplified by her Presence of noise (even at levels relatively Low, lower than those fixed by the legislation to be known Lex, d of 85dBA) and by the presence of substances Ototoxiques more contemporary. The studies on animals and epidemiological data Identified 3 “trial levels”: Reliable, missing, Likely.

It is clear that it is not possible to know the effects of many agents or medicine as well as their specific effects if they are even administered Time. In a sense, the total damage of several urs agents can exceed the simple sum of the damage that these only agents produce. We can have, according to the academic definitions, Various effects:

Citation: Maci L and Tavolaro M. (2019). The Auditory Screening for Workers who are Exposed to Noise and Ototoxic Substances. *Journal Of Otolaryngology - Head And Neck Diseases* 1(1).

- An effect of addition of individual substances,
- An effect of development(increase) of the sum of the effects of

Individual substances,

- An effect of synergy in which none of the agents

The effective only one is,

- An effect of synergy in which the agents are individually

Effective separately,

- An effect of synergy in which a single agent is

Effective.

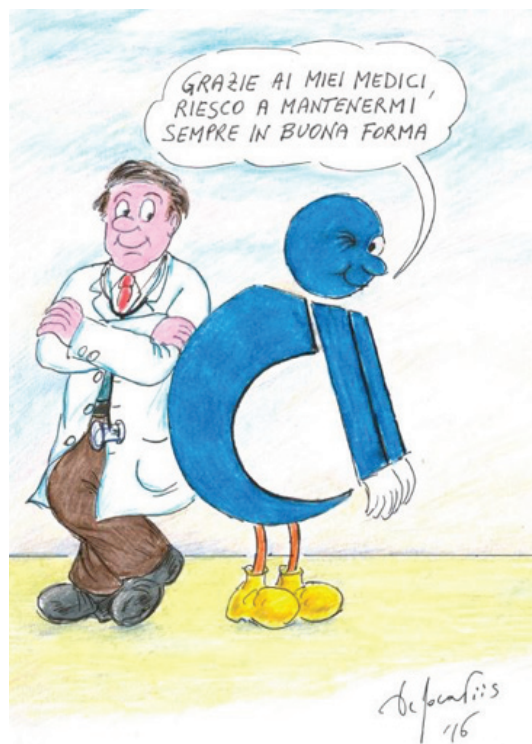
In the ideal, the audiological tests should be "Specific" and to allow to differentiate the traumas Acoustics of the damage ototoxiques bound to the poisoning in solvents or in other factors as infectious agents or grip of substances Therapeutics.

In our experience, workers should be given preference. "at risk" means

- an increase in unexpected deafness,
- asymmetry of hearing loss not explainable,
- the appearance of another extra-Orl symptomatology,
- considerable worsening in 2000 Hz
- history of ototoxic drug use
- a health surveillance indication required by the law by the occupational doctor.

In all these cases, we believe that audiometry iminary tonal, complete impedancemetry preceded of a tympanogram and the search for reflexes cochleo – stapedians, acoustic oto–emissions may constitute standard examinations. In case of a positive answer, we can proceed to a more comprehensive and comprehensive battery of examinations. Odkvist in 1982 had developed a battery (drum kit) of tests.

In the present state of our knowledge, no examination Audiologic presents characteristics of validity, of reproducibility, sensibility, specificity, of standardization, reliability, low cost who can connote a value absolved in the field of her Forensic medicine and the occupational medicine. The progress of the audiology must be accompanied in parallel by the standards of prevention and by the rigor Methodological. He is desirable, consequently, to face in a adequate way all Difficulties and the costs of implementation, to make one Individual evaluation because he seems for the moment Impossible to make a systematic screening. It is necessary to concentrate on the workers" at risk



References

1. Directive 98/24/EC 'on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)', Official Journal of the European Communities L 131, 05/05/1998, pp. 0011-0023.
2. Directive 2003/10/EC 'on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) (seventeenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)', Official Journal of the European Communities L 042, 15/02/2003, pp. 0038-0044.
3. INSHT, 'Guía técnica para la prevención y evaluación de los riesgos relacionados con la exposición de los trabajadores al ruido'
4. WHO - World Health Organisation, 'Occupational health', WHO/SDE/OEH/05.04, Geneva.
5. WHO - World Health Organisation Regional office for Europe, 'Noise and health', 23. August 2007
6. Salvi, R.J., Henderson, D., Eddins, A.C., (1995). 'Effects of noise exposure on the auditory system', Handbook of neurotoxicology (Ed. : Chang,L.W., Dyer, R.S.), Marcel Dekker, New York, pp. 907-961.

Citation: Maci L and Tavolaro M. (2019). The Auditory Screening for Workers who are Exposed to Noise and Ototoxic Substances. *Journal Of Otolaryngology - Head And Neck Diseases* 1(1).

7. Toppila, E., Pyykkö, I., Starck, J., Kaksonen, R., Ishizaki, H., (2000). 'Individual risk factors in the development of noise-induced hearing loss', *Noise Health* 2(8). 59-70.
8. ACOEM – American College of Occupational and Environmental Medicine. (2003). 'Noise-induced hearing loss evidence-based statement', *J. Occup. Environ. Med.* 45(6). 579-581.
9. ACGIH – American Conference of Governmental Industrial Hygienists, *Threshold Limit Values and Biological Exposure Indices*, ACGIH Publication, Cincinnati, 2009.

Benefits of Publishing with EScientific Publishers:

- ❖ Swift Peer Review
- ❖ Freely accessible online immediately upon publication
- ❖ Global archiving of articles
- ❖ Authors Retain Copyrights
- ❖ Visibility through different online platforms

Submit your Paper at:

<https://escientificpublishers.com/submission>