

SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator.

Action number: **STSM BM1306-38492**

STSM title: **“Tinnitus and hyperacusis in professional musicians and sound engineers“**

STSM host: A' ORL University Clinic, National and Kapodistrian University of Athens, Greece.

STSM Supervisor: Associate Professor Thanos Bibas

STSM start and end date: 11/09/2017 to 21/10/2017

Grantee name: Patricia Pérez Carpena

PURPOSE OF THE STSM:

The purpose of this STSM “Tinnitus and hyperacusis in professional musicians and sound engineers“ with Prof. Dr. Thanos Bibas, Dr. Dimitris Kikidis, Dra. Katerina Vardonikolaki and their team, in the University Department of Otolaryngology (AORL) at the Hippocratio Hospital in Athens, Greece, was to learn about the work of a multidisciplinary group in the assessment and treatment of patients with tinnitus.

Rationale:

The main goal of the scientific mission is to perform a research work on psychoacoustic characterization of tinnitus (pitch, tinnitus loudness, minimum masking level), with a special focus on tinnitus residual inhibition. One of the main objectives is to compare residual inhibition of tinnitus among the different groups of patients, by performing a cluster analysis of patients with complete RI, in order to get a better understanding of this phenomenon. It is also intended to carry out a collaboration between both hospitals on this field.

The secondary objectives of this STSM are the following: to attend the musicians, audiology and neuro-otology clinic, as well as the Post-surgical follow-up clinic. Additionally, musicians' clinic is multidisciplinary and the team includes otolaryngologists, audiologists and physiotherapists. At least 50% of musicians suffer from tinnitus, and 45% of them present hyperacusis, which are higher percentages than those occurring amongst non-musicians.

It is also intended to study different audiological tests, such as psychoacoustic curves, or DPOAE.

With this scientific mission, I will gain experience and background knowledge of standardized clinical assessment in a specialized Tinnitus clinic.

Duration:

The total duration of STSM was six weeks, starting from Monday 11th September 2017, until Saturday 21th October 2017.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSM

1st week:

Presentation, and description of the clinic distribution;

Attendance to Musicians, audiology and neuro-otology clinic. Attendance to post-surgical follow-up clinic.

Accomplishment of the bibliographic review on tinnitus residual inhibition, based on Pubmed, MEDLINE and Scopus.

2nd week:

Presentation of the results obtained in the bibliographic review, in clinical session.

Attendance to Musicians, audiology and neuro-otology clinic. Study of the main complementary audiologic tests (Tympanometry and stapedial reflexes, TEOAE, DPOAE, PTC, high frequency audiogram).

Study and interpretation of questionnaires in the evaluation of patients with tinnitus (VAS, THI, TFI).

Attendance to Otology operating theatre (EAC exostosis).

Discussion and establishment of Residual Inhibition Protocol.

3rd week:

Attendance to Musicians, audiology and neuro-otology clinic.

Attendance to Otology operating theatre (Canal wall-down mastoidectomy in Cholesteatoma patient).

Writing and preparation of data forms and informed consent in English, for a later translation into Greek (and Spanish, for a future collaboration between hospitals, as we previously commented).

Presentation of the project to the ethics committee.

Preparation of the bibliographic review article on Tinnitus residual inhibition.

4rd week:

Attendance to Musicians, cochlear implant, audiology and neuro-otology clinic.

Attendance to Otology operating theatre (Tympanoplasty).

Study and application of VEMPs in neuro-otology Clinic.

Realization and implementation of Stapedial reflexes, PTC and DPOAE.

5th week:

Study of VEMPs implementation and evaluation

Attendance to Musicians, audiology and neuro-otology clinic.

Recruitment of the first patients for the study.

6th week:

Attendance to Musicians, audiology and neuro-otology clinic.

Recruitment of more patients and definitive establishment of the protocol, in order to continue with the project in both hospitals simultaneously.

Presentation of the final bibliographic review article.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

During this STSM, the main objectives have been reached:

- The discovery of the multidisciplinary assessment of patients with tinnitus. It has been possible to have a precise idea about the daily activity of a Multidisciplinary working group, and the different roles of the professionals involved in the assessment and treatment of tinnitus patients, in order to try to export and establish this working model to Granada.
- The study and performance of different diagnostic methods, particularly High frequency audiogram, stapedial reflexes, DPOAE and PTC, and their different practical application and usefulness in tinnitus patients.
- The realization of a detailed literature review in regards to the residual inhibition of tinnitus. Seven articles were included after according to certain inclusion and exclusion criteria, published during the last ten years. The main conclusions of this review are as following:
 - o According to the frequency of the sound stimulus selected, evidence suggests that tinnitus frequency-focused sounds result in higher RI rates.
 - o We have found that the duration of the sound exposure presented a remarkable relation to the duration of the RI recorded, when applying short-term stimulation. This result is not applicable for maintained over time stimulation.
 - o On top of this, there is an important lack of methods and procedures standardization on RI studies, according to the type of study design, sound stimuli selected, RI measurement and results.

- The establishment and start of a tinnitus residual inhibition project for a future publication. With this study, we want to perform an original work on cluster analysis. For this purpose, it is necessary to obtain an important sample of patients, which will be obtained from the host Hospital centre, and from the home centre, after the end of the STSM.

FORESEEN PUBLICATIONS (if applicable)

The drafting of the article on the bibliographic review has been completed, and will be sent for publication in the next weeks.

According to the RI project, it is also intended to be sent for future publication depending on the final results.

FUTURE COLLABORATIONS (if applicable)

As mention above, the previous protocol will be established in Hospital Campus de la Salud (Granada, Spain), in order to get a significant sample for the cluster analysis of tinnitus residual inhibition.

Other comments:

This STSM has proved to be a very significant training experience as an ENT resident. It has helped me to know different ways of working with tinnitus patients, and has aroused an important interest in the development of new research projects in my home hospital.

Special thanks to host institution, and especially to Dr. Thanos Bibas, Dr. Dimitris Kikidis and Dra Katerina Vardonikolaki, and the rest of the team, for their hospitality.