

BIMODAL COCHLEAR ACTIVATION: HEARING IMPROVEMENT AND QUALITY OF LIFE ANALYSIS

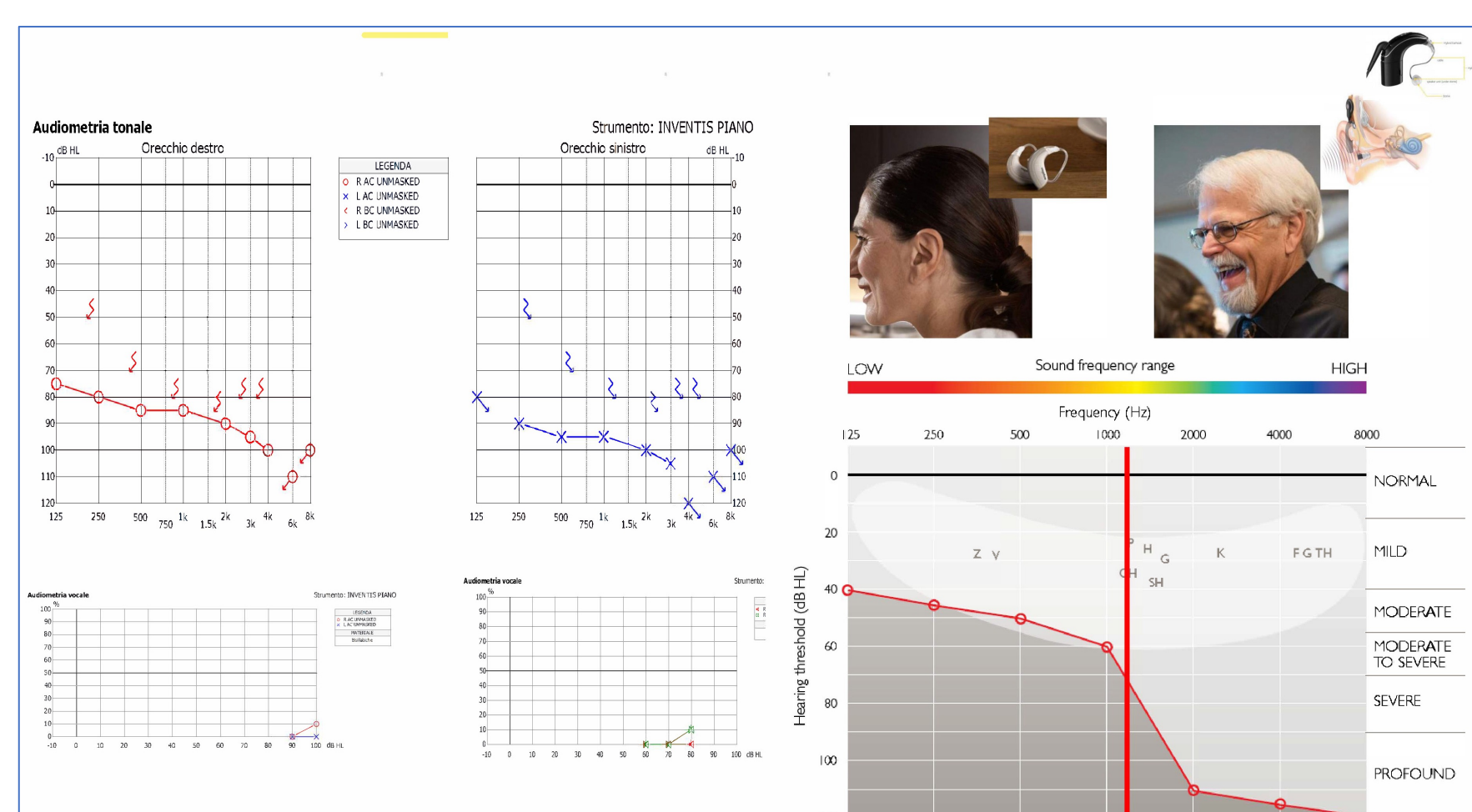


INTRODUCTION: The aim of this study is to evaluate the improvements in hearing gain and quality of life in a group of patients undergone synchronous bimodal cochlear implant (CI) and hearing aid (HA) activation.



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METHODS: From December 2021 to November 2022 have been enrolled patients undergone CI for unilateral profound post-lingual sensorineural hearing loss (SNHL), with mild to severe SNHL in the other side. A synchronous bimodal activation of CI and Hearing Aid (HA) has been done 20 days after surgery. Six months after bimodal activation, the intelligibility achieved was evaluated performing a free field voice test, in quiet and noise, using CI and HA separately and then CI&HA combined. To evaluate verbal perceptive abilities, the "verbal perception test for adults" was used 4-6-8-10 months after surgery, performing a vocal audiometry with only implant and then with bimodal stimulation. The complete intelligibility spatiality quality (CISQ) questionnaire was used to evaluate the outcomes of quality of life.

RESULTS: 15 patients have enrolled in the study. The study group was homogeneous about hearing deprivation in the implanted ear (average 5 years), time of CI&HA daily use (12-14 hours), and severity of hearing loss in implanted ear (80-90 dbHI VO). The hearing gain obtained with bimodal activation is significant in noise, highlighting also a significant increase in word recognition scores with bimodal modality compared to the use of the CI alone. The CISQ test confirmed the better hearing performance, particularly in noisy environments.

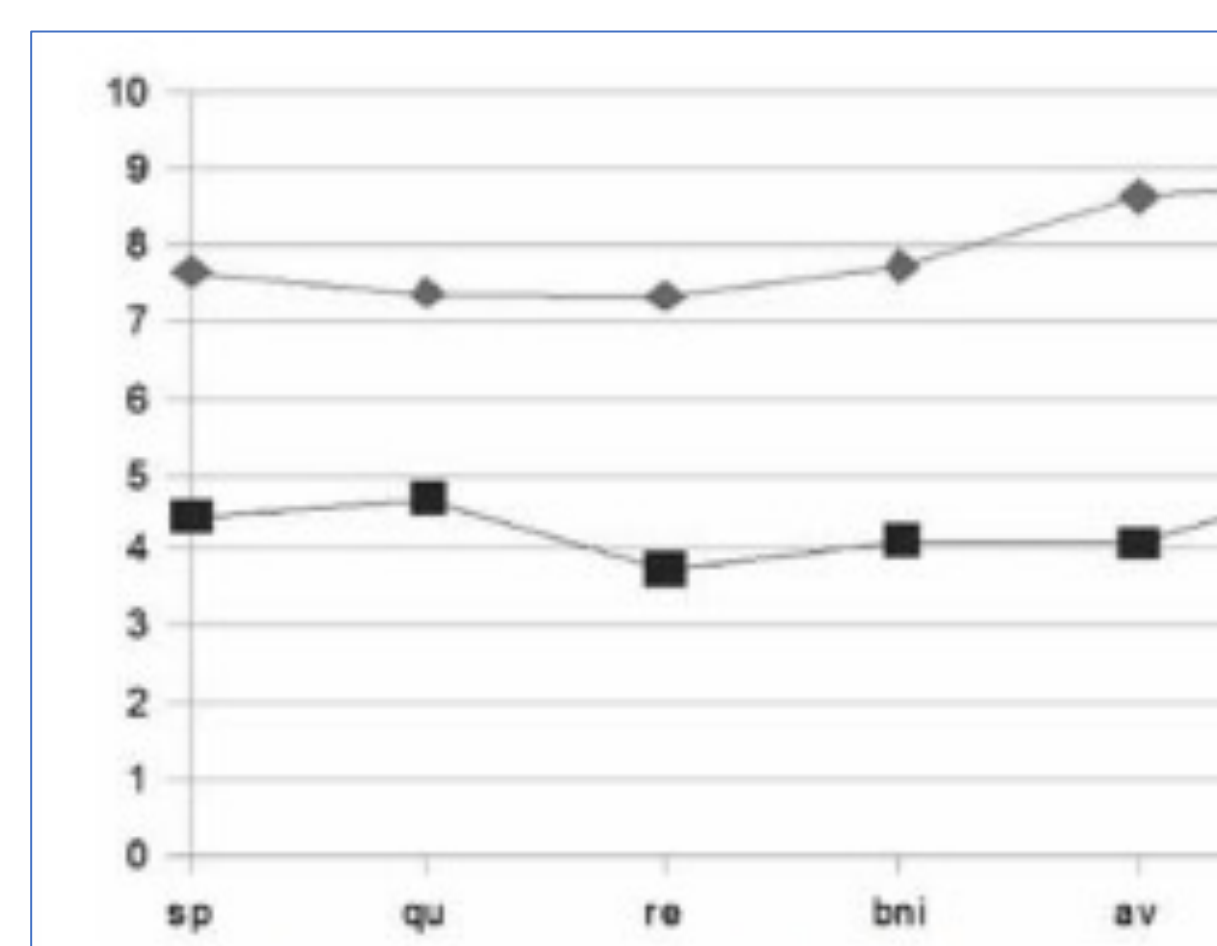
PATIENTS ENROLLED	15
Sex	
Female	3 (20%)
Male	12 (80%)
Average Age (years)	73 (71-87)
COCHLEAR IMPLANT	15 pz (100%)
PROFOUND SENSORINEURAL HEARING LOSS (SNHL)	HEARING LOSS (80-90 dbHI VO)
HEARING AID	<ul style="list-style-type: none"> ALL FREQUENCIES (90%) DOWNWARD SLOPING HIGH-FREQUENCIES (10%)
MILD-SEVERE SNHL	

QUALITY OF LIFE

CISQ (Complete Intelligibility Spatiality Quality):

36-item questionnaire developed in six subscales: spatiality of signal, quality of signal, reverberation, background noise intelligibility, averseness and intelligibility in silence.

SCORE PRE: 3-4
SCORE POST (4 MESI): 8-9



CONCLUSIONS: To our knowledge, the synchronous activation of CI and HA represents an innovation in most audiological centre. Aids fitting is usually performed 6 months after CI activation in order to obtain a better performance in CI functioning. Our study, even if performed on a limited number of patients and in absence of a control group (patients with only CI), confirm the advantage of bimodal activation, especially in noisy environments, and a better and faster hearing gain, even if acoustic potentials in implanted ear are not optimal. A better Quality of Life is also reported in the patients' population studied.