Evolution of cognitive performances in cochlear implanted adult patients with cognitive screening tests CODEX and MoCA.

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Disclosure of Conflicts of interest

• No conflict of interest.
Introduction

- Acquired deafness and rehabilitation with a cochlear implant entail a cortical reorganization in regions dedicated to speech processing (Peterson et al., 2013).

- In addition, auditory rehabilitation can induce an improvement of cognitive abilities in elderly patients (Mosnier et al, 2015).

- Aim of the study: are the two cognitive tests CODEX (Belmin et al, 2007) and MoCA (Nasreddine et al., 2005) sensitive enough to bring out cognitive changes in patients after cochlear implantation?
**Method**

Codex : COgnitive Disorders EXamination
- Clock test : numbers, clock hand, 3h25
- Short term memory (3 words) : cigar - flower - door
- Spatio temporal issues

MoCA : MOntreal Cognitive Assessment

Belmin et al, 2006

**Population**

- 24 subjects : 10 women - 14 men
- Mean age = 63 years ± 3.49 [23-90]
- Profound deafness = 6.01 years ± 1.47[0.2-25]

- Evaluation : Pre-implant (n=24), 6 months (n=6), 12 months (n=18)
- Visual presentation only
- No visual / neurological disorder

www.mocatest.org Nasreddine et al, 2005
No significant changes in performances tested with the CODEX for all the patients before/after CI.
Improvement of the MoCA scores at 6 months (p<0.02) and 12 months (p<0.01) after CI for patients with abnormal scores before CI.
Deafness duration

Speech Performances (silence)

MoCA

MoCA score

MoCA score

MoCA score

Dissyllabic words (%)
Post-implant 6 months:
Correlation normal scores Codex/MoCA

Post-implant 12 months:
Correlation scores Codex/MoCA
Cognitive evaluation procedure

- Codex MoCA
  - Codex A / B and/or MoCA ≥ 26
    - No additional evaluation
  - Codex C / D and/or MoCA < 26
    - Neuropsychological evaluation
      - Specific rehabilitation
Conclusion

• CODEX not sensitive enough to quantify the evolution of the cognitive profile of patients whereas MoCA sufficiently sensitive to measure cognitive deficits before and after CI.

• MoCA test allows a qualitative approach → evaluation of a wider range of cognitive functions than the CODEX (visuospatial, short term memory, abstraction and categorization).

• MoCA → interesting tracking test / part of a sensory-cognitive screening process in the elderly, as well as hearing, visual or vestibular impairments in the sensory field.