Verbal and visuo-spatial working memory capacities of deaf children with a cochlear implant compared with their hearing peers

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Résumé en anglais	The Cochlear Implant (CI) is a recent electroacoustic device. We still have few information on the development it has for the deaf child and even less on the nature of the representations used by the deaf child to memorize verbal or visuo-spatial information. The CI generally gives excellent results, especially if the child was early implanted. However, being cochlear implanted does not allow acquiring the oral language immediately. Even when the implantation is early, visual information (lip reading and keys of the Cued Speech) improve the perception of the oral language. They provide a phonetic complement in the impoverished signal sent by the implant. This study, implying 14 deaf children with cochlear implant (CI) and 14 hearing children (mated on the real age) , has been made to know better the use of the verbal and visuo-spatial working memory and to compare their results to those of Hearing children. The method used to estimate assess the working memory is adapted from the procedure of Cleary, Pisoni and Geers (2001). The children had to memorize series of images or series of locations of points in a grid with various conditions. The series were presented one at a time, with sound and / or Cued Speech (that is with the visual input of the language spoken completed. We have tried to know which condition is the most favourable to memorize a verbal or a visuo-spatial information and which type of information (verbal or visuo-spatial) is the best memorized. We have observed for the 2 groups a difference of performances with the verbal or the visuo-spatial modality, the second one being better/ giving better results. What is surprising is that the results also show that Cued Speech for this type of memorizing task, and more especially with the verbal modality, doesn't give any help to improve the deaf children performances. For the hearing children, we notice that the more information they have the better their scores are with the verbal modality. The best successful condition for the deaf children with the 2 modalities I the one with only images or only points in a grid without any use of audition and / or Cued Speech. These results can be discussed considering the limits of the study (Number of children, age of the pose of the cochlear implant, school level).
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