The neurolinguistic approach to awake surgery reviewed.

De Witte E, Mariën P.
Department of Clinical and Experimental Neurolinguistics, Vrije Universiteit Brussel, Pleinlaan 2, 1050 Brussels, Belgium.

Abstract

OBJECTIVES: Intraoperative direct electrical stimulation (DES) is increasingly used in patients operated on for tumours in critical language areas. Although a positive impact of DES on postoperative linguistic outcome is generally advocated, the literature is only scantily documented with information about the linguistic methods applied in awake surgery. This article critically reviews the neurolinguistic procedures currently used in awake studies.

METHODS: Based on an extensive review of the literature, an overview is given of the language mapping techniques applied in brain tumour surgery. Studies investigating linguistic testing and outcome in awake surgery were analysed. Information about the timing of the assessment(s), the linguistic tasks, the linguistic stimuli and the indication for awake surgery was also discussed.

RESULTS: Intraoperative DES remains the 'gold standard' for language mapping, but pre- and postoperative non-invasive mapping methods are important adjuncts. In the pre- and postoperative phase, standardised linguistic test batteries are generally used to assess language function. In the intraoperative phase, only naming and number counting are commonly applied. Most often no detailed information about the linguistic stimuli is provided and no standardised protocols measuring different linguistic levels have been described.

CONCLUSIONS: Awake surgery with DES is a useful tool for preserving linguistic functions in patients undergoing surgery in critical brain regions. However, no studies exist that apply a well-balanced and standardised linguistic protocol to reliably identify the critical language zones. The availability of a standardised linguistic protocol might substantially increase intraoperative comfort and might improve outcome and quality of life.

Copyright © 2012. Published by Elsevier B.V.

PMID: 23036660 [PubMed - as supplied by publisher]