Auditory evoked potentials for the assessment of depth of anaesthesia: different configurations of artefact detection algorithms.

Monitoring the depth of anaesthesia has become an important research topic in the field of biosignal processing. Auditory evoked potentials (AEPs) have been shown to be a promising tool for this purpose. Signals recorded in the noisy environment of an operating theatre are often contaminated by artefacts. Thus, artefact detection and elimination in the underlying electroencephalogram (EEG) are mandatory before AEP extraction. Determination of a suitable artefact detection configuration based on EEG data from a clinical study is described. Artefact detection algorithms and an AEP extraction procedure encompassing the artefact detection results are presented. Different configurations of artefact detection algorithms are evaluated using an AEP verification procedure and support vector machines to determine a suitable configuration for the assessment of depth of anaesthesia using AEPs.