

# Cerebral blood oxygenation monitoring

Guidelines on [cardiopulmonary resuscitation](#) (CPR) have stressed the necessity to improve the quality of CPR.

Previous studies demonstrated the usefulness of [cerebral blood oxygenation monitoring](#) (CBO) during CPR by [near-infrared spectroscopy](#) (NIRS).

Yagi et al. evaluated whether the [NIRO-CCR1](#), a new [NIRS](#) device, is as useful in the clinical setting as the NIRO-200NX.

Yagi et al. monitored CBO in 20 patients with [cardiac arrest](#) by NIRS. On the arrival of patients at the [emergency department](#), the attending physician immediately assessed whether the patient was eligible for this study after conventional advanced life support and, if eligible, measured CBO in the [frontal lobe](#) by NIRS. They found that in all patients, the [cerebral blood flow](#) waveform was in synchrony with the chest compressions. Moreover, the [tissue oxygenation](#) index increased following cardiopulmonary bypass (CPB) in patients undergoing CPB, including one patient in whom CBO was monitored using the NIRO-CCR1. In addition, although the NIRO-CCR1 could display the pulse rate (Tempo) in real-time, Tempo was not always detected, despite the detection of the cerebral blood flow waveform. This suggested that chest compressions may not have been effective, indicating that the NIRO-CCR1 also seems useful to assess the quality of CPR. This study suggests that the NIRO-CCR1 can measure CBO during CPR in patients with cardiac arrest as effectively as the NIRO-200NX; in addition, the new NIRO-CCR1 maybe even more useful, especially in prehospital fields (e.g. in an ambulance), since it is easy to carry <sup>1)</sup>.

<sup>1)</sup>

Yagi T, Kawamorita T, Kuronuma K, Tachibana E, Watanabe K, Chiba N, Ashida T, Atsumi W, Kunimoto S, Tani S, Matsumoto N, Okumura Y, Yoshino A, Sakatani K. Usefulness of a New Device to Monitor Cerebral Blood Oxygenation Using NIRS During Cardiopulmonary Resuscitation in Patients with Cardiac Arrest: A Pilot Study. Adv Exp Med Biol. 2020;1232:323-329. doi: 10.1007/978-3-030-34461-0\_41. PubMed PMID: 31893427.

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