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Abstracttitel: Regional mixed tissue oxygen saturation is useful to evaluate perfusion status during aortic surgery

Background:

Perfusion status during aortic surgery changes depending on procedures and sites of cross clamping of aorta and arterial cannulation. To evaluate tissue perfusion and detect malperfusion earlier are important for the organ protection.

We monitored regional mixed tissue oxygen saturation (rSO₂) of extremities and right flank area derived from near-infrared spectroscopy with INVOS 5100C (Somanetics, IL, USA) to evaluate tissue perfusion in three aortic cases.

Case 1: A 71-year-old woman with hypertension presented with a thoracic dissecting aortic aneurysm. Replacement of ascending aorta and aortic arch was performed under deep hypothermic circulatory arrest (DHCA). rSO₂ was monitored at left and right forehead, left forearm and left lower thigh.

Case 2: A 63-year-old man with hypertension presented with a thoracic aneurysm at aortic arch and descending aorta. Replacement of aortic arch and descending aorta was performed under DHCA. rSO₂ was monitored at left and right forearm, right lower thigh, that is the side of the femoral arterial cannulation, and right flank area.

Case 3: A 80-year-old woman with hypertension presented with a aneurysm of common iliac artery. Repair of the aneurysm was performed. rSO₂ was monitored at left and right forearm and left and right lower thigh.

In all cases, rSO₂ of each sites decreased after DHCA or cross clamping of aorta and increased after perfusion recovery.

Conclusions:

rSO₂ reflects changes of perfusion status of extremities during aortic surgery.

rSO₂ seems to be useful to evaluate peripheral tissue perfusion non-invasively.