

28. Investigation of local heterogeneity of hbO₂ and hb in working dog heart in situ under isovolemic hemodilution and critical coronary stenosis

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Abstract:

A tissue spectrophotometer (EMPHO II) working with 70 micrometer micro lightguide sensors enables recording of spectra in the visible wavelength range (500 - 630 nm). During an initial period arterial hypoxia and hyperoxia were induced on working dog heart by mechanical ventilation with oxygen fractions (fiO₂) of 0.1 and 0.5. Under these conditions the effects of low and high fiO₂ on oxygenation distribution of intracapillary hemoglobin were investigated. In the second part of the experiment the relation between systemic hematocrit, local hemoglobin concentration, local hemoglobin oxygenation and the oxygen regulation mechanism were studied in detail. In the final part of the experiment the effect of critical coronary stenosis on hb and hbO₂ was measured. Critical stenosis was achieved by partial clamping of the left anterior coronary artery (LAD).