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Features of spectroscopic saturation assessment for different organs of the gastrointestinal tract

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During surgical intervention it is important to know the state of the sutured tissues to prevent postoperative complications. One of the possible ways to determine tissue condition is to measure the level of the oxygen saturation. In this work considered goal was reached by the method of diffuse scattering spectroscopy. The equipment, which was used to perform the measurements, included spectrometer "LESA-01-BIOSPEC", broadband light source, optical fiber and PC with special software "Uno Momento". The saturation determining was performed intraoperatively during operations with anastomosis application. When performing esophageal resection saturation was measured not only during open stage of the surgery but also torascopically after the anastomosis formation. Also one of the peculiarity for this organ is the preservation of the saturation level after tissue intersection, while for the stomach and intestine this value decreases significantly after the mobilization of the vessels. Based on the results of this work method of diffuse scattering spectroscopy is suitable for the assessment of tissue state by the measurement of the oxygen saturation level during anastomosis surgeries on the different parts of the gastrointestinal tract.

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