Pulmonary vein isolation by cryoablation at the General Hospital Slavonski Brod

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Atrial fibrillation (AF) is the most common cardiac arrhythmia in the general population. The global prevalence of AF is estimated to be between 2% and 4%, with a continued increase in the number of patients expected[1]. AF is associated with increased overall mortality and morbidity, as well as a higher risk of stroke and heart failure[2]. The gold standard in the treatment of AF is pulmonary vein isolation. At the General Hospital Slavonski Brod, the first pulmonary vein isolation using cryoablation was performed on February 13, 2019. Since then, a total of 186 procedures have been conducted. The procedure is performed by an interventional cardiologist/electrophysiologist. At the beginning of the procedure, local anesthetic is applied to both groin regions. The left femoral vein is punctured, and an introducer sheath is inserted through which a line for measuring activated clotting time, an invasive pressure monitoring system, and intracardiac echocardiography (ICE) are placed. Through the puncture of the right femoral vein, an introducer with an inserted needle for transseptal puncture is positioned, enabling access to the left atrium and pulmonary vein ostia. A cryoballoon is then inserted through the same introducer, and ablation of the pulmonary vein ostia is performed using liquid nitrogen. ICE is removed, and a decapolar electrophysiological catheter is placed to monitor the function of the phrenic nerve via electrical stimulation. If, at the end of the procedure, the patient is still in atrial fibrillation, synchronized cardioversion is performed[1].

As with all invasive cardiology procedures, aseptic techniques, sterility protocols, hemodynamic monitoring, analgesia and sedation, coagulation time measurement, and fluoroscopy are all employed, alongside other standard procedural steps. The medical team includes two nurses and a radiology technologist. Potential complications include allergic reactions to the contrast agent, puncture site complications such as bleeding, hematoma, or infection, phrenic nerve injury, esophageal injury, cardiac perforation, pulmonary vein damage, or stroke. This is why the procedure requires thorough preparation and a well-trained, experienced team[2].

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LITERATURE

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