

The significance and development of the Invasive Cardiac Laboratory at the General Hospital "Dr. Josip Benčević" in Slavonski Brod

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It is well known that heart diseases are the leading cause of morbidity and mortality worldwide¹. Good organization and education in diagnosing and treating these conditions are of paramount importance in providing healthcare to cardiac patients. Quality and integrity of healthcare services are crucial for all healthcare institutions. The development of catheterization techniques in invasive cardiology over the past decades has allowed for the widespread use of invasive methods in diagnosing and treating cardiac patients². To enhance the care of cardiac patients, the General Hospital "Dr. Josip Benčević" in Slavonski Brod initiated the reconstruction of the Coronary Care Unit in 2003 to repurpose it into an invasive cardiology laboratory, which was officially opened on October 15, 2003 (Figure 1).³ The team, which consisted of two doctors, Dr. Božo Vujeva and Dr. Đeiti Prvulović, two nurses, Ana Bilić and



Ministar zdravstva mr.sc. Andro Vlahušić otvara prvi Invazivni kardiološki laboratorij u Slavoniji u društvu predsjednika Države S. Mesića, župana Brodsko-posavskog dr. M. Dorića i ostalih gostiju.

FIGURE 1. The Minister of Health of the Republic of Croatia, Andro Vlahušić, MD, opens the first invasive cardiology laboratory in Slavonia in the company of the President of the Republic of Croatia, Stjepan Mesić, October 15, 2003, six months after the opening of the new Coronary Care Unit.

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Renata Valenčak, and medical radiology engineer Mato Čizmić, had earlier started education in the field of invasive cardiology, mostly at the University Hospital Dubrava in Zagreb, and in the University Hospital Centre Tuzla, Bosnia and Herzegovina. The first invasive procedure that was performed was the implantation of a single-chamber pacemaker on December 1, 2003 under the mentorship of Dr. Davor Richter from the University Hospital "Merkur" Zagreb. After that, the first coronary angiography was performed on December 6, 2003 under the mentorship of Dr. Boris Starčević from the University Hospital Dubrava (Figure 2 and Figure 3).

Since 2006, we have been performing percutaneous coronary interventions under the mentorship of interventional cardiologists from University Hospital Dubrava. Gradually, our intervention team started providing care to patients from neighboring counties. In January 2014, as part of the Primary PCI Network of the Republic of Croatia, the intervention team was on standby 24/7 for the area of western Slavonia. In the same year, the renovation of the Laboratory for Invasive Cardiology began, and the procedure for a new radiological device for coronary angiography was initiated by the Ministry of Health of the Republic of Croatia. During the renovation of the invasive room, coronary angiography, percutaneous coronary intervention, and electrostimulator implantations were performed in the diascopy room at the Department of Radiology. That hall was located on the ground floor of the building and at the very other end of the building, and it was a small room, so the working conditions were very demanding. After the work was completed and the new radiological device was installed, we started work in the new catheterization laboratory on December 11, 2015 (Figure 4). In everyday practice, the following diagnostic and therapeutic procedures are performed: coronary angiography, percutaneous coronary interventions (with or without stent placement), angiography/peripheral interventions, rotational atherectomy, electrophysiological interventions (cryoablation and radiofrequency ablation), implantation procedures (pacemaker, cardioverter-defibrillator, cardiac resynchronization therapy, loop recorder, His bundle pacing), percutaneous closure of patent foramen ovale and atrial septal defect, and balloon aortic valvuloplasty. The introduction of the transradial approach has allowed for the performance of diagnostic coronary angiography through the outpatient clinic, cover-

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FIGURE 2. The first coronary angiography was performed at the General Hospital "Dr. Josip Benčević" in Slavonski Brod on December 6, 2003. In the picture, from left to right: Dr. Đeiti Prvulović, Dr. Boris Starčević, Dr. Božo Vujeva, nurses Ana Bilić and Renata Valenčak.



FIGURE 3. After the successful first coronary angiography at the General Hospital "Dr. Josip Benčević" in Slavonski Brod, on December 6, 2003. In the picture from left to right: Mato Čizmić, medical radiology engineer, Ana Bilić, nurse, Dr. Đeiti Prvulović, Dr. Božo Vujeva, and Dr. Boris Starčević.

ing the majority of procedures. Since 2019, patient registries have been maintained for those undergoing coronary angiography with or without intervention, peripheral angiography with or without intervention, electrophysiological procedures, and pulmonary vein isolation. To minimize the risks associated with these complex procedures, the invasive cardiology laboratory operates with a specially trained interdisciplinary team composed of invasive cardiologists, radiology engineers, and nurses authorized to work with sophisticated equipment to care for patients with severe heart diseases and significant comorbidities⁴. The role of the nurse as part of the interventional cardiology medical team is crucial, involving pre-planning for the admission of critically ill patients. The education of nurses in patient preparation, instrument preparation, patient monitoring before, during, and after procedures, and adherence to established protocols is of utmost importance. Knowledge of the anatomy and physiology of the heart, as well as the pathophysiology and development of cardiac diseases and potential complications, presents a challenge for the nurse in terms of defining interventions for the management and treatment of complications⁵.



FIGURE 4. The new invasive cardiology laboratory after the reconstruction that was finished on December 11, 2015.

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