

Rational and consistent use of drug-coated balloons in a single percutaneous coronary intervention center in Croatia: five-year experience

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Drug-eluting stents (DES) remain the standard of care in contemporary percutaneous coronary intervention (PCI). However, their permanent metallic scaffolding may pose long-term risks, including late stent thrombosis and in-stent restenosis (ISR). In response, "leave nothing behind" strategies particularly drug-coated balloons (DCB) are increasingly being adopted as a viable alternative. DCBs have demonstrated reliable clinical efficacy, especially in the treatment of ISR, and currently represent the only stent-free technology routinely used in PCI practice. Beyond ISR, their potential role in the treatment of de novo lesions is increasingly supported by emerging evidence.^{1,2}

At the General Hospital in Slavonski Brod, Croatia, DCBs have been in use since 2010. Between October 2020 and October 2025, a total of 552 DCB procedures were performed out of 3.449 PCI procedures (16%). Annual use has remained stable and targeted. This rational and individualized application mirrors global trends, where DCB usage accounts for 6% to 16.5% of all PCI procedures in some regions and even higher in specialized centers. The 2018 European Society of Cardiology (ESC) guidelines on myocardial revascularization issued a class IA recommendation for the use of DCBs in the treatment of ISR. In contrast, the 2024 ESC guidelines for chronic coronary syndromes now recommend DES over DCBs in patients with DES-ISR (also class IA). In our center, we aim to make rational and individualized therapeutic decisions. Accordingly, in the treatment of ISR particularly in cases with multiple stent layers, persistent stent underexpansion, bifurcation lesions, or increased bleeding risk we consider DCBs a more acceptable and appropriate therapeutic option.

It is important to emphasize that we do not view DCBs as a replacement for DES, but rather as a complementary technology particularly valuable for reducing the "metal burden" in complex or high-risk patients. The concept of "hybrid" PCI strategies (DCB + DES) is gaining momentum and supports an individualized approach. Our experience confirms that when used thoughtfully, DCB angioplasty is a safe, effective, and sustainable revascularization strategy that deserves a more prominent role in future PCI paradigms.

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