



Navigating Stents and Unveiling Complications in Percutaneous Coronary Procedures

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INTRODUCTION

Percutaneous coronary procedures, like angioplasty and stent placement, are vital interventions to improve blood flow in obstructed heart arteries. Bare-Metal Stents (BMS): These stents are made of metal and do not have a drug coating. While they effectively hold the artery open, they have a higher risk of restenosis (re-narrowing). Drug-Eluting Stents (DES): These stents are coated with drugs that are slowly released to prevent restenosis. They are the preferred choice for many PCI procedures. Over the years, percutaneous coronary procedures have seen remarkable advancements, enhancing their safety and efficacy. Drug-Eluting Stents (DES) significantly reduced the rate of restenosis, leading to improved long-term outcomes for patients undergoing PCI. Bio absorbable stents are a recent innovation designed to gradually dissolve in the body after maintaining artery patency. This avoids the long-term complications associated with permanent stents and allows for more natural vessel healing. Fractional Flow Reserve (FFR) is a diagnostic technique used during PCI to measure the pressure difference across a blockage in a coronary artery. It helps interventional cardiologists determine whether a stent is necessary and can optimize decision-making during the procedure. Intravascular Ultrasound (IVUS) and Optical Coherence Tomography (OCT) are imaging techniques provide detailed images of the coronary arteries during PCI, enabling more precise stent placement and reducing the risk of complications.

DESCRIPTION

Robot-assisted PCI allows for greater precision during the procedure, reduces radiation exposure for the medical team, and may expand access to care in remote areas through telemedicine. Bioresorbable Scaffolds are the next generation of stents that are fully absorbed by the body once they have served their purpose, leaving no permanent implant behind. While percutaneous coronary procedures have made significant strides in safety and efficacy, there are still potential complications and

risks. In some cases, the treated artery can re-narrow over time, necessitating further intervention. Stent Thrombosis: Blood clots can form within the stent, leading to a heart attack. Antiplatelet medications are typically prescribed to prevent this. The access site (wrist or groin) may bleed or develop a hematoma, especially in patients on blood-thinning medications. Rarely, patients can have an allergic reaction to the contrast dye used during the procedure. Following a percutaneous coronary procedure, patients are closely monitored and typically spend a night in the hospital. Recovery times vary, but most individuals can return to their daily activities within a few days to a week. It's essential to adhere to prescribed medications and lifestyle modifications, such as dietary changes and exercise, to optimize long-term outcomes.

CONCLUSION

Regular follow-up appointments with a cardiologist are crucial to monitor progress, manage risk factors, and adjust medications as needed. Patients will also need to continue antiplatelet therapy to prevent stent thrombosis. Artificial Intelligence (AI) is being employed to analyze large datasets and assist in predicting patient outcomes and customizing treatment plans. Advances in catheter technology may allow for even less invasive procedures, reducing recovery times and complications further. Genetic profiling and individualized treatment plans based on a patient's genetic makeup are becoming more common. Telemedicine and remote monitoring of patients after procedures may become more prevalent, enhancing accessibility to specialized care.

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CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

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