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Press Release

## **Stents with degradable polymer coating after myocardial infarction offer no advantage**

**A recent study led by Inselspital, Bern University Hospital, and the University of Bern in collaboration with six Japanese hospitals has shown that stents with a degradable polymer coating offer no long-term advantage over conventional stents. After three years, both types of stent are equally effective. However, patients who take cholesterol-lowering medication consistently have a lower risk of complications following stent implantation. The study thus underlines the importance of long-term drug therapy after a heart attack.**

Stent implantations are one of the most frequently performed cardiology procedures worldwide. Stents are used to open narrowed coronary arteries and reduce the risk of subsequent heart attacks. Although the long-term results after stent implantation are positive in most cases, complications occur later in around 1–2 percent of patients each year. A common cause of these complications is a phenomenon known as neoatherosclerosis. Neoatherosclerosis occurs when new cholesterol deposits form on the inner lining of the stent, which can lead to blockage. Preventing such neoatherosclerosis reduces the risk of stent complications in the years after implantation.

### **Differences in stent coating**

Today, stents are often coated with a drug that prevents the inner lining of the vessel from growing too far and blocking the stent. These drug-eluting stents have a thin layer of a polymer on the metal struts that releases the drug to the vessel wall. In some stents, this polymer layer remains permanently, but in stents with biodegradable polymer, the polymer dissolves after a few months. It was previously hoped that the dissolving of the

polymer layer would reduce inflammation in the vessel wall and thus reduce the risk of new deposits, a complication termed neoatherosclerosis. However, whether this was actually the case remained unclear.

### **Comparison of stent types in heart attack patients**

A comprehensive study led by Dr. Jonas Häner and Professor Lorenz Räber from the Department of Cardiology at Inselspital Bern, in collaboration with six Japanese hospitals, has now investigated this question. In the study, 239 heart attack patients were randomly treated with either a stent with a degradable coating or a stent with a permanent polymer coating. Three years later, the inside of the stents was examined for signs of neoatherosclerosis in the cardiac catheter laboratory with a high-resolution camera in a procedure called optical coherence tomography. The results showed that neoatherosclerosis occurred with similar frequency in both groups: 11.4 percent in the stents with degradable coating and 13.3 percent in the conventional stents. Thus, stents with a degradable coating offer no advantage over stents with a permanent polymer coating.

### **Long-term protection with statins**

According to Professor Räber, head of the cardiac catheterization laboratory, the study revealed another interesting discovery: patients who took their cholesterol-lowering drugs, statins, regularly for three years were significantly less likely to develop neoatherosclerosis in the stents than were those who did not follow the therapy consistently: 8.5 percent compared to 27.8 percent. These results are of great importance for the treatment of patients after a heart attack. Although the choice of stent type may be less crucial, the study underlines the central role of consistent use of cholesterol-lowering drugs for long-term health. A stent alone is not enough for complete recovery. "The results show how important it is for patients to keep an eye on their cholesterol levels after stent implantation," emphasizes Prof. Räber. "Consistently lowering cholesterol is crucial to avoiding complications later on." Dr. Häner, senior physician for interventional cardiology and co-author of the study, adds: "Proper aftercare is just as important as the procedure itself."

### **Link**

[Department of Cardiology](#)

### **Publication**

Taniwaki, M\*, Häner, JD\*, Kakizaki, R et al. Long-term effect of biodegradable vs durable polymer Everolimus-eluting stents on neoatherosclerosis in ST-segment elevation

myocardial infarction: the CONNECT trial. Eur Heart J. 2024 Sep 1:ehae589. [doi: 10.1093/eurheartj/ehae589](https://doi.org/10.1093/eurheartj/ehae589). Online ahead of print.

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