

Comparison of methods to achieve artery closure following coronary angiography

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Stefanie Schulz-Schupke, M.D., of the Deutsches Herzzentrum Munchen, Technische Universitat, Munich, Germany and colleagues assessed whether vascular closure devices are noninferior (not worse than) to manual compression in terms of access site-related vascular complications in patients undergoing diagnostic coronary angiography. The study appears in the November 19 issue of *JAMA*, a cardiovascular disease theme issue.

Percutaneous (through the skin) coronary angiography and interventions have become a cornerstone in the diagnosis and treatment of [coronary artery disease](#). A substantial proportion of the adverse effects associated with these procedures is related to access-site complications. The common femoral artery (a large artery in the groin) is still the most frequently used access site. After the procedure, closure of the artery access site is usually achieved by [manual compression](#). Since the mid-1990s, however, vascular closure devices (VCDs) have been introduced into clinical practice with the aim of improving efficacy and safety. Different types of VCDs have been developed, including intravascular and extravascular. However, concern exists about the safety of VCDs in comparison with manual compression, according to background information in the article.

For this study, conducted at four centers in Germany, 4,524 patients undergoing [coronary angiography](#) via the common femoral artery were randomly assigned to receive an intravascular VCD (n = 1,509), extravascular VCD (n = 1,506), or manual compression (n = 1,509) to

achieve hemostasis (defined as no bleeding or only light superficial bleeding and no expanding hematoma [a localized swelling filled with blood]). Before hospital discharge, imaging of the access site was performed in 4,231 (94 percent) patients.

The primary end point (the composite of access site-related vascular complications at 30 days after randomization with a two percent noninferiority margin) was observed in 208 patients (6.9 percent) assigned to receive a VCD and 119 patients (7.9 percent) assigned to manual compression (difference, -1.0 percent). In addition, the time to hemostasis was significantly shorter with VCD compared with manual compression; time to hemostasis was shorter with intravascular VCD vs extravascular VCD; and device failures were less frequent with intravascular VCD vs extravascular VCD.

The authors write that the results of this trial may represent an important development for the clinical use of these devices. "Overall, the increase in efficacy of VCD use, with no trade-off in safety, provides a sound rationale for the use of VCD over manual compression in daily routine."

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