



## Are the “Pads” Back?



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In the United States, transradial arterial access (TRA) is progressively being used more and more for patients undergoing diagnostic cardiac catheterization (CC) and percutaneous coronary intervention (PCI). A strong number of studies have demonstrated that use of TRA has its benefits over the transfemoral approach. Some of these benefits include reductions in the risk of access-related complications, vascular bleeding, and mortality, as well as reductions in cost and patient discomfort [1–5]. As the number of physicians who use TRA grows, so do the efficacy and safety of the procedure. Studies that can further improve TRA techniques and standards of care are most relevant and impactful as we move toward preferring TRA procedures.

Currently, common practice is to place a compression band alone after TRA in order to achieve hemostasis. However, previous studies, including this recent one by Roberts et al., are continuing to provide evidence for the benefits of using a hemostatic pad in conjunction with a hemostatic compression band [6–9]. In this issue of *Cardiovascular Revascularization Medicine*, Roberts et al., sought to investigate whether use of the chitosan-based Clo-sur radial pad combined with the mechanical compression (TR band) could shorten hemostasis time after TRA compared with a TR band alone. The pilot study included 40 patients undergoing CC and/or PCI. The patients were then divided into 4 cohorts. One group received the standard TR Band for 120 min; the remaining three groups received both the TR band and the pad for 60 min, 45 min, and 30 min. The results indicated the addition of the pad to the TR band did improve time to hemostasis without increasing the risk for bleeding complications. Important to note, the investigators ascertained that there were no differences in patient clinical characteristics, mean dose of heparin, or mean activated clotting time values [10]. The study was successful in demonstrating that the pad in addition to the TR band can reduce the time to hemostasis.

Why is it beneficial to reduce time to hemostasis? One of the main concerns when performing CC or PCI is maintaining radial artery patency and preventing radial artery occlusion (RAO) and bleeding after TRA. Studies have shown that decreasing the amount of time the band is compressed can reduce the rate of RAO [11,12]. Therefore, addition

of the pad, which decreases hemostasis time, may lead to early deflation of the band, which in turn may lower the risk for RAO. In addition, reducing the amount of time a patient has to wear a compression band might also lessen patient discomfort caused by the tightness of the band itself. Furthermore, catheterization laboratory efficiency might be improved because patients will be moved through more expeditiously. Less time in the hospital and a more efficient catheterization laboratory may also be conducive to cost saving. These are all positives and serve as strong rationale for further investigation of the relationships between hemostatic pads, risk for RAO, catheterization laboratory efficiency, patient comfort, and healthcare cost savings. More studies are needed providing evidence that these associations stand. Furthermore, future studies should be larger, multicenter, prospective clinical trials in order to ensure proper population representation as well as statistical soundness.

Although this was a pilot study with a small sample size, its results are nonetheless relevant and impactful. The authors recognized the small sample of 40 patients as a limitation and suggest that future studies gather enough study subjects to adequately power the analysis. Although the results of this study were clinically significant, they were not able to determine whether they were statistically significant. This makes it difficult to draw definitive comparisons and conclusions.

With an ever-aging society and patients being more likely to have more than one procedure in their lifetime, it has become increasingly important to preserve arterial patency after TRA. Although RAO can be symptom silent, it remains paramount for clinicians to take the necessary steps in order to prevent them from occurring so that when access is needed in the future, it is available and viable. The study by Roberts et al. sought to determine whether the addition of a chitosan-based hemostatic pad significantly reduces the time it takes to achieve hemostasis. To build the case of scientific evidence for the use of hemostatic pads after TRA, future studies could compare the relationship between RAO risk reduction and hemostatic pads. Similarly, studies analyzing the cost benefit of adding a device to the band would be beneficial. For example: Does the increase in catheterization laboratory efficiency

overcome the added cost of a hemostatic pad? The study by Roberts et al. has set the stage for further research and opened the doors for a discussion on whether it is worth the cost of an added device after TRA. If we can determine and build the case that RAO events are significantly reduced, catheterization laboratory efficiency is improved, and costs lowered, then perhaps it is worth it to bring “the pads back.”

### Declaration of competing interest

The authors report no financial relationships or conflicts of interest regarding the content herein.

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