

## Removal of the intra-aortic balloon pump: Why and in what way?

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We have read with great interest the article by Rychter et al. [1], entitled "Initial experience of intra-aortic balloon pump removal using Angio-Seal". We congratulate the authors on their valuable contribution to the literature. However, we would like to discuss some issues about intra-aortic balloon pump (IABP) removal techniques.

Using vascular closure devices (VCD) is a common practice in percutaneous endovascular interventions. It contributes to shorter hemostasis times and early mobilization compared to standard manual compression. In addition, since greater vascular access is required in attempts to repair endovascular aortic aneurysms, VCDs can eliminate the need for surgical intervention [2]. In their study, the authors investigated whether the VCD could be used safely and could achieve hemostasis when removing an IABP. VCDs are effective, including larger vascular interventions. Here, the real question may be the cost and effectiveness.

IABP applications are very effective in the treatment of cardiovascular diseases [3]. The authors included in their study 34 consecutive patients who had IABP implanted in the cardiac surgery intensive care unit over approximately 4 years, and VCDs were used for IABP removal [1]. For most of the patients, the procedure was a bridge to cardiac surgery operation (coronary artery bypass grafting, orthotopic heart transplantation, etc.). In these patients, the need for IABPs may be most prolonged. However, patients with IABP therapy duration time above 7 days have been excluded. It may be helpful to explain this situation.

VCD application takes a certain amount of time and is performed by an experienced physician. A recent study has shown that an experienced perfusionist could perform

IABP removal [4]. So, manual compression can be less complicated with a trained perfusionist. Additionally, physician workloads can be reduced. Moreover, patient-specific IABP removal methods may be preferred. For example, in a patient with advanced chronic obstructive pulmonary disease, VCD, used as early mobilization, will be very important. In another patient, manual compression may be preferred. VCD applications can be used in IABP removal from different regions where hemostasis control can be difficult [5]. However, there are also studies indicating that manual compression is effective in IABP removal applications from the axillary artery [6].

In addition, very low body mass index, tall height, and severe atherosclerosis at the vascular access site are important factors that increase complication rates during VCD applications [2]. In a study investigating the effectiveness of VCD in IABP removal applications, such as the discussed study [1], the authors should also consider these situations.

As a result, the authors showed in their study that IABP removal can be performed safely with VCD. However, the real question is who will remove the IABP catheter and how. Current studies should focus on cost-effectiveness analyses and patient-based applications.

### Article information

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