Predictors of venous occlusion following Cardiac Implantable Device implantation.

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**Introduction:** Additional insertion of leads may be necessary in leads complication after Cardiac Implantable Device implantation. If the vein on the implantation side of the device is occluded, the lead can not be inserted and the lead is added to the opposite side. However, it is not known in detail whether it is occluded. Therefore, we studied vein angiography on both sides at the time of exchanging, lead revision, or device upgrade and checked for occlusion.

**Methods:** 104 patients who showed bilateral contrast venography before generator change, lead revision, or device upgrade were studied (61 male, 72±13 years, 61 Pacemaker, 28 Implantable Cardioverter Defibrillator, 15 Cardiac Resynchronization Therapy). Clinical factors and blood samples were obtained before procedure.

**Result:** Venous total occlusion was observed 15/104 patients (14%). 1 of the 15 patients had venous total occlusion on the opposite side from Device implantation side. Number of leads (p=0.0127) was significantly associated with higher risk of venous occlusion, whereas anticoagulation therapy (p=0.0376) significantly reduced incidence of venous occlusion. On multivariate analysis, number of leads (p=0.0202, OR 2.7800 for 1 increase in number of leads) were associated with venous occlusion.

**Conclusion:** In this study, only 1 patient (1%) was admitted to venous total occlusion on the opposite side from device implantation side. At the time of adding the lead, it is necessary to consider occlusion on the opposite side.