Selection of Cardiac Implantable Electronic Device Might Affect Prevention of Pocket Hematoma

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Cardiac implantable electronic device infection were increasing by the increase of the implantation of high energy device including ICD and CRT, CRTD. And the prevention of hematoma was thought to be one of the solution of the prevention of device pocket infection. We measured the volume of dead space which is surrounding device in the pocket by filling colored water using phantom model. We measured using different five types of device and calculated mean value from measuring several times for each device. And we compared the measured mean value of the estimated dead space which was calculated using the data of capacity and thickness of the device. Measured volume and thickness of device were as followings, DeviceA: 53 and 1.50 mm, DeviceB: 47 and 1.35 mm, DeviceC: 43.7 and 1.30 mm, DeviceD: 43.7 and 1.05 mm, and DeviceE: 33.3 and 0.99 mm. And estimated volume and thickness of device were as followings, DeviceA: 39.6 and 1.50 mm, DeviceB: 36.0 and 1.35 mm, DeviceC: 32.0 and 1.30 mm, DeviceD: 21.2 and 1.05 mm, and DeviceE: 19.1 and 0.99 mm. In conclusion, dead space which could be filled by hematoma might increase by the proportion of the thickness of device. The thinness of device might be one of the way for the prevention from device pocket infection.

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