Clinical Experience of Contrast Venography Guided Axillary Vein Puncture for Placement of Pacemaker and Defibrillator Leads in Chinese Patients

Ngai-Yin Chan, Ngai-Shing Mok, Chi-Wo Wu, Wai-Suen Leung, Ping-Tim Tsui, Miu-Fong Kwok, Chi-Chung Choy

**Background and Objectives:** Subclavian crush phenomenon is associated with lead placement using subclavian puncture (SP). Cephalic venous cutdown (CV), free of this complication, may be too small for use or just not big enough for multiple leads placement as in biventricular pacing or dual site atrial pacing. Contrast venography guided axillary vein puncture (AP) has been described to solve this problem. This study reports on clinical experience of this technique in Chinese patients. **Methods:** AP has been introduced in Princess Margaret Hospital since 1/7/00. Patient characteristics, effectiveness, safety and implantation time are analysed. Sizes of axillary, subclavian and cephalic veins are compared. **Results:** AP was performed in 28 patients, 11 male and 17 female with mean age 64.9±14.3 years from 1/7/00 to 30/9/01. Sixteen patients had dual chamber pacing, 1 single chamber pacing, 6 biventricular pacing, 1 dual site atrial pacing, 1 single chamber upgrade to dual chamber pacing, 2 single chamber and 1 dual chamber ICD implantation. AP was successful in 26/28 (92.9%) patients. One failure was due to venous tortuosity which was then bypassed by SP. The other failure was due to small size of axillary vein and SP was then used. Implantation time using AP was not significantly different from a nonAP group of 44 patients using SP or CV during same period. (113±27.2 vs 125.3 ±47.3 min, p=0.105) There were no AP related complications. Using venography, axillary vein is comparable to subclavian vein in size. (8.7±2.2 vs 9.7±2.3 mm, p=0.114) Cephalic vein is significantly smaller than axillary or subclavian vein. (3.6 ±1.3 mm, p<0.001). **Conclusions:** AP is both effective and safe for pacemaker or defibrillator lead placement. Multiple leads placement is possible in view of comparable size of axillary vein to subclavian vein. And implantation time using AP is similar to using other techniques. AP should therefore be complementary to other approaches for lead placement. (J HK Coll Cardiol 2002;10:74-80)

**Key words:** Axillary vein puncture, contrast venography, defibrillator lead placement, pacemaker lead placement