**Introduction**: The prevalence, predictors of new onset high percentage ventricular pacing in implantable cardioverter defibrillator (ICD) patients are not well studied.

**Methods**: This was a retrospective study enrolling 213 consecutive patients implanted with a home-monitor ICD from 2010 to 2017 with a mean follow-up of 3.1±1.9 years. After excluding patients with pacing indication, 182 patients were left in the study. The information of pacing percentage was exacted from home-monitor database. Ventricular pacing (Vp)≥40% was defined as high Vp%, and Vp≥80% pacing dependent (PD). The combined end point events included all-cause death, heart transplantation and device upgrade. The patients were assessed six months after implantation and every year thereafter. Multivariate logistic regression and Cox proportional hazard models were used for analysis.

**Result**: The mean age was 55.9±14.3 years; and male was 77.5%, with 30.8% primary prevention. New onset high Vp% occurred in 50 (27.4%) patients, after a mean time of 1.6±1.3 years; PD developed in 21(11.5%) patients, and the mean time to PD was 2.7±1.2 years. High Vp% was associated with a 2.79-time risk for end point events (95% confidence interval 1.45-5.39; p<0.001). Older age, low ejection fraction and low basic heart rate were the strongest predictors of the high Vp%.

**Conclusion**: In conclusion, new onset high Vp% was not uncommon in ICD patients and was related to decreased survival.