Objectives  It is necessary to examine the details about the in-hospital mortality after primary stenting for ST-segment elevated myocardial infarction (STEMI) in the present drug-eluting stent (DES) era by using the various devices such as thrombectomy catheter and distal protection device. Therefore, this single centre, retrospective, and non-randomised study was conducted to clarify the predictors of in-hospital mortality in consecutive 901 first STEMIs in these 7 years.

Methods  The incidence of in-hospital mortality was 3.6% (n=32). The percentages of DES, IABP, IVUS, thrombectomy catheter, and distal protection device use were 81.1, 16.0, 96.3, 76.9 and 71.9%, respectively. The incidence of early definite stent thrombosis was 0.33% (n=3). The percentages of LV dysfunction (EF<40%), left main trunk, IABP use, complication of cardiac rupture, Killip classification 3–4, first TIMI-grade flow 0–1, and Rentrop grade 0–1, and the mean values of age, serum Ht at emergent room (ER), serum LDH at ER, serum Cr at ER, serum peak CK-MB were significantly different between in-hospital mortality group and discharge alive group. By multiple logistic regression analysis, complication of cardiac mechanical rupture, Killip classification 3–4, first TIMI-grade flow 0–1, LV dysfunction (EF<40%), and age were the significant predictors of in-hospital mortality. By multiple logistic regression analysis, the value of serum peak CK-MB and age were the predictors of cardiac rupture in the patients with complicated with cardiac rupture.

Conclusions  In the present DES era, the incidence of in-hospital mortality was only a few percentages. However, the optimal method besides primary stenting for the STEMI patient with aging and extend infarction needs to be further explored.