A prosthesis-patient mismatch (PPM) is present when the prosthetic valve is too small in relation to the patient's body size. The purpose of the present study was to investigate the frequency of PPM after the implantation of the Medtronic CoreValve System, and its relation to the clinical outcome. The indexed effective orifice area (EOA) was measured in 74 patients with symptomatic severe aortic stenosis, who had undergone successful transcatheter aortic valve implantation with the Medtronic CoreValve System, at baseline and discharge. PPM was defined as severe (indexed EOA<0.65 cm$^2$/m$^2$) or moderate (indexed EOA 0.65 to 0.85 cm$^2$/m$^2$). The indexed EOA increased from 0.35 +/- 0.13 to 0.97 +/- 0.34 cm$^2$/m$^2$ after transcatheter aortic valve implantation (p<0.001) and was accompanied by significant clinical improvement. Severe and moderate PPMs were found in 16% and 23% of patients, respectively. Patients with severe PPM were more symptomatic and had a smaller indexed EOA at baseline than those with moderate or no PPM (0.28 +/- 0.09 vs 0.36 +/- 0.12 cm$^2$/m$^2$, p<0.05). Functional status and mortality at 30 days and 6 months was not significantly different between the patients with severe PPM and those with moderate or no PPM. In conclusion, the indexed EOA increased significantly after
transcatheter aortic valve implantation. Severe PPM was observed in 16% of the patients and was not associated with the clinical outcome.