Objective: We aimed to clarify the relationship between T-wave alternance (TWA) and heart rate turbulence (HRT), and measures of heart rate variability (HRV) in patients with ischemic heart disease. Methods: We analyzed 52 subjects who performed Holter ECG monitoring for the evaluation of ischemic heart disease. The mean age was 61±12 years old; 36 males and 16 females. Positive TWA was defined as 65μV or more. With regard to HRT, turbulence onset (TOS)>0% and turbulence slope (TSL)<2.5ms were defined as abnormal. HRV was analyzed by the MemCalc method. These parameters were analyzed by daytime and nighttime. Results: When the TWA was divided by positive (N=27) and negative (N=25), all HRV parameters were similar between the groups. When the subjects were divided by TOS, daytime LF/HF was lower in the abnormal TOS group than in the normal TOS group (2.1±1.0 vs. 4.0±2.7, P=0.016); however, other HRV parameters such as %NN50 were similar between the groups. Finally, when the subjects were divided by TSL, daytime and 24-hr SDNN, TF, ULF and VLF were lower in the abnormal TSL group than the normal TSL group. Conclusions: TWA would be determined by some different mechanism than HRV. Abnormal HRT was associated with both sympathetic and parasympathetic nervous system abnormalities, which could reflect overall impairment of autonomic nervous system control. Keywords: TWA, HRT, HRV