The aim of this study was to assess whether spectral turbulence analysis (STA) of the signal-averaged electrocardiogram (SAECG) is of prognostic use in patients with idiopathic dilated cardiomyopathy. SAECGs were recorded at presentation in 84 patients with idiopathic dilated cardiomyopathy and STA was performed using 183 Del Mar software. STA was abnormal (> or = 3 of the 4 standard parameters beyond the normal range) in 31 patients (37%). Patients were followed for a mean duration of 24 +/- 18 months (range 1 to 59) during which time 24 (29%) developed progressive heart failure (14 underwent cardiac transplantation), 4 died suddenly or had aborted sudden death, and the others remained clinically stable. Progressive heart failure occurred more often in patients who had an abnormal versus a normal STA result (15 [48%] vs 9 [17%]; p < 0.002). Actuarial survival revealed a 1-year survival of 90% in patients with a normal STA result, and 63% in patients with an abnormal STA result (p < 0.01). The predictive ability of STA to identify patients with progressive heart failure was sensitivity 63%, specificity 77%, positive predictive value 54%, and negative predictive value 83%. Univariate analysis identified peak oxygen consumption as having the largest relative risk for the development of progressive heart failure (9.55, 95% confidence interval [CI] 2.1 to 43.9). Left ventricular end-diastolic dimension (relative risk 4.18, 95% CI 1.5 to 11.4) and STA (relative risk 3.81, 95% CI 1.7 to 8.8) were also significantly associated with the development of progressive heart failure.