The prognostic value of exercise peak VO2 is still controversial. We therefore prospectively studied 75 patients in New York Heart Association functional class II or III with chronic heart failure stabilized by drug treatment. The patients (mean age of 58 +/- 10 years) were submitted to a clinical examination, a radionuclide determination of left ventricular ejection fraction, and a haemodynamic study at rest (right side catheterization); their plasma sodium, plasma creatinine and blood urea nitrogen levels were measured in addition to exercise peak VO2. An exercise peak VO2 threshold value of 14 ml.kg-1.min-1 was used to define two groups: GI (23 patients), with an exercise peak VO2 < or = 14 ml.kg-1.min-1 and G2 (52 patients) with an exercise peak VO2 > 14 m.kg-1.min-1. G1 and G2 were comparable in terms of age, heart rate, left ventricular ejection fraction, cardiac index and mean arterial pressure. Apart from exercise peak VO2, G1 and G2 also showed differences in right and left ventricular filling pressures, plasma sodium, plasma creatinine, blood urea nitrogen levels and exercise duration (all P < 0.01). Moreover the prognosis was worse in G1 than in G2: nine deaths vs 0, and seven major events--major events being defined as pulmonary oedema, hospitalization for heart failure, or severe ventricular arrhythmias--vs three (P < 0.001). A sub-group analysis (deceased patients, living patients with and without major events) was performed. Out of 20 clinical and paraclinical parameters, exercise peak VO2 proved to have the greatest prognostic value.(ABSTRACT TRUNCATED AT 250 WORDS).