Introduction

In chronic diseases it is critical to perform exercise. The successful transplant allows the patients to recover from the chronic disease. Regular exercise and also sport activities (if possible), lead to an optimal functional recovery that may counteract the side effects of the immunosuppressive therapy (table 1). Limited information has been published about sporting activities in solid organ transplant recipients. The aim of this study is to verify “in the field” the capacity for physical activity in transplant patients and some correlated metabolic and psychological aspects.

Methods

16 transplant recipients (3 men, 52±15yrs; 3 women, 34±12yrs) who had undergone transplant (1 kidney, 4 liver, 1 heart) 89±69 months before participating in a day of alpine skiing (figure 1) were studied.

Body mass index (BMI) was calculated; body fat percentage was determined using plicometry (Jackson-Pollock equation).

Functional health and well-being scores were obtained using the SF-36 health survey. The patients performed a countermovement jumping test to measure the explosive power (POW) of the lower limbs (Bosco Test; Optojump, Microgate, Italy).

All patients were a multi-sensor device (SWA figure 2) recording physiological body signals (kin temperature, near body temperature/heat flux, galvanic skin resistance, 2 accelerometers; Armiband, Body Media, Pittsburgh, PA) worn on the lateral head of the right triceps brachii. This device allows to calculate the daily Energetic Expenditure (EE; kcal), the Metabolic Equivalents (METs) and the number of steps performed by the patients.

Results

BMIs were 24.0±2.0 kg/m² for men and 24.2±3.0 kg/m² for women; body fat was 19±3% (men) and 27±11% (women). The SF-36 scores relating to the perceived quality of life were higher than those reported in the literature for transplant recipients (table 2). The maximum displacement during the jumping test was 23.7±9.9 cm (range 11-40 cm) in men and 17.5±4.9 cm (range 12-21 cm) in women. The SWAs were worn for a period of 2 hours 12 minutes ± 2 hours 49 minutes (table 3). Physical activity ≥3METs was recorded in all patients for a period of 2 hours 58 minutes ± 2 hours 8 minutes.

Conclusions

The study confirms the efficacy of solid organ transplantation in terms of physical and social recovery. Sporting activity helps to improve people’s perception of their own well-being. The technical component of alpine skiing is supported by the power of the lower limbs. Even though results for POW and level of physical activity were very varied in the studied patients (CV between 5% and 78%), the performances of the transplant recipient patients seems to be similar and sometimes better of those of the general population.

The steps/day data indicate that most of the patients fall between the categories of ‘somewhat active” and “active” people (1) that are associated with a reduced risk of chronic heart conditions (2).

References