A-CaRe study 3: Exercise intervention after stem cell transplantation.

No registrations found.

Ethical review	Positive opinion
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON25999

Source
Nationaal Trial Register

Brief title
EXIST

Health condition

Physical exericse, Physical fitness, Fatigue, Stem cell transplantation

Sponsors and support

Primary sponsor: Dept of Hematology, Academic Medical Center Amsterdam

Source(s) of monetary or material Support: Dutch Cancer Society, Alpe d'HuZes Foundation

Intervention

Outcome measures

Primary outcome

1. Cardiorespiratory fitness;

2. Muscle strength;

3. Fatigue.

Ad 1) Cardiorespiratory fitness is measured during a VO2max test on a cycle ergometer under supervision of a sport physician. A ramp test design will be applied, after 4 minutes of unloaded cycling; the load will be gradually increased till exhaustion. Throughout the test ECG and pulse oxymetry will be monitored and heart rate, blood pressure and gas exchange variables will be measured. Among the variables that will be determined are the VO2peak, maximal heart rate, maximal work rate, maximal minute ventilation, VO2 uptake at ventilation threshold, and the maximal respiratory exchange ratio.

Ad 2) Upper extremity muscle strength of adults is measured using a grip strength dynamometer. Lower extremity muscle strength is tested by the functional 30s chair stand test, according to a standardized measurement protocol.

Ad 3) Two self-report questionnaires will be used to assess fatigue: the Multidimensional Fatigue Inventory (MFI) and the Fatigue Quality List (FQL). The MFI consists of 5 subscales based on different dimensions: general fatigue, physical fatigue, reduced activity, reduced motivation and mental fatigue. The FQL consists of 25 adjectives describing the fatigue experience, organized into 4 subscales: frustrating, exhaustion, pleasant and frightening.

Secondary outcome

1. Body composition and bone mineral density;

2. health-related quality of life;

3. Physical activity level;

4. Mood disturbance;

5. Functioning in daily life;

6. Return to work;

7. Satisfaction with the intervention.

Ad 1) Body composition and bone mineral density will be measured using dual-energy-x-ray (DXA). Body composition will also be estimated with the use of antrometry data.

Ad 2) Health-related quality of life will be determined with the EORTC Core Quality of Life Questionnaire C30 (QLQ-C30), the EORTC myeloma module (QLQ-MY20; only for patients with multiple myeloma) and the ZLZ-CIPN20 questionnaire.

The EORTC QLQ-C30 encompasses 30 items divided in five functional scales, three symptom scales and an overall QoL scale. Additional single items address other symptoms commonly experienced by cancer patients. The QLQ-MY20 is used to receive extra information on the HR-QoL in patients with multiple myeloma. Chemotherapy induced peripheral neuropathy will be scored using the ZLZ-CIPN20 questionnaire.

Ad 3) Physical activity is measured with the PASE Questionnaire. In addition, physical activity is measured by the Actitrainer accelerometer,

Ad 4) Mood disturbance will be assessed with the 14-item Hospital Anxiety and Depression Scale (HADS). The HADS assesses symptoms of mood disturbance, yielding separate scale scores for anxiety and depression, as well as a total score.

Ad 5) Functioning in daily life will be assessed with the Impact on Participation and Autonomy (IPA) questionnaire. The IPA questionnaire consists of 32 items assessing perceived level of participation and autonomy, organised into 5 domains.

Ad 6) The following indices of RTW are measured: 1. time to partial and full return RTW; 2. time to full RTW corrected for partial RTW; 3. Partial and full RTW rate at follow up; 4. Details on hours worked per week, nature of the work, and return to a different job will also be recorded.

Ad 7) Satisfaction with the intervention is assessed in the intervention group only. For this purpose a satisfaction questionnaire is developed consisting of questions about: 1. the perceived efficacy of and satisfaction with the intervention program; 2. need for changes to the program; 3. the willingness to recommend the program to other patients undergoing high dose chemotherapy and SCT.

Other study outcomes:

1. Clinical data, including date of diagnosis, stage and subtype of disease, and treatment

history will be obtained from the medical records. During the follow up-period data on disease status (response to treatment, progression or relapse) and data on any additional treatment will be retrieved from the medical records.

2. Sociodemographic data such as age, education, marital status, living situation, medication use (including alternative medications) and life style variables (e.g. smoking) will be obtained at baseline using a questionnaire.

3. Moderating variables: A series of questions will be used to assess a number of potential moderating variables: (1) pre-illness lifestyle, (2) current attitudes towards and beliefs about exercise in general, (3) exercising after stem cell transplantation in particular, (4) potential predictors of compliance with the exercise program.
These questions are adapted from measures developed by Courneya and colleagues for use in evaluating exercise in cancer survivors, and are based on health behavior theories, in particular the Theory of Planned Behavior. They will be asked at baseline only.

4. Costs will be measured from a societal perspective. The following are considered in this study: 1) Health care costs: the costs of oncological care, general practice care and physiotherapy; additional visits to other health care providers, prescriptions of medication, professional home care and hospitalization. 2) Patient and family costs: out-of-pocket expenses (e.g. travel expenses), costs for sports and sports equipment, and costs of paid and unpaid help. 3) Costs due to loss of production (absenteeism for patients with paid jobs and hours of inactivity for patients without a paid job).

These data will be collected though retrospective cost questionnaires administered on a monthly basis during the period between T0 and T2. Health care utilization will be valued using Dutch cost prices.

5. Adverse Events: The grading of toxicity and adverse events will be done using the most recent version of the NCI Common Terminology Criteria for Adverse Events, CTCAE version 4.

Study description

Background summary

Background:

Physical exercise interventions after stem cell transplantation can have positive effects on physical fitness, fatigue and quality of life in hematologic patients who have undergone high dose chemotherapy and autologous stem cell transplantations. However, the trials conducted

so far were of poor to moderate quality. Also data on cost-effectiveness of these interventions are not available. Hence there is a need for a rigorous, appropriately controlled assessment of the (cost-)effectiveness of exercise programs in these patients.

Purpose:

The study is part of a larger research program (A-CaRe) which is sponsored by the Alpe D'HuZes foundations and coordinated by the EMGO institute in Amsterdam. The objectives of the current study are: (1) to determine the effectiveness of a state-of-the-art individualized high intensity strength and interval training program with respect to physiological and psychological status in patients with multiple myeloma and (non-)Hodgkin's lymphoma who have recently undergone HDC followed by ASCT and (2) to evaluate the cost-effectiveness of this exercise program.

Plan of investigation:

Following a small pilot study to evaluate feasibility of the process of training and assessments according to a detailed manual, a prospective, randomized controlled trial will be performed in 120 patients with multiple myeloma or relapse (non-)Hodgkin's lymphoma who have undergone induction chemotherapy followed by high-dose chemotherapy and autologous stem cell transplantation. Patients will be randomized to either the intervention group or the control group.

The intervention will start 6-12 weeks after SCT and will consist of an 18 weeks supervised high intensity exercise program (2x/wk for the first 12 weeks and 1x/wk for the last 6 weeks; aerobic and resistance exercise). 3 booster sessions at increasing (4, 10, 18 weeks after completion of the intervention program) will be held during which patients are trained and counselled and motivated to continue exercising and maintain active lifestyle in general. The control group will receive standard care. Patients will be followed until 12 months after the end of the intervention program or a comparable time after SCT in the control group.

The primary outcome variables are fatigue, cardiorespiratory fitness and muscle strength. Secondary outcome measures include adherence and compliance, health-related quality of life, physical activity, mood disturbance and return to work. A cost-effectiveness analysis will be performed.

Relevance:

If demonstrated to be effective, the availability of the intervention will be a welcome addition to the standard care of patients with of haematological cancer patients treated with high dose chemotherapy and autologous stem cell transplantation.

Study objective

Stem cell transplantation survivors who received the high-intensity strength and interval training program will (1) have an improved physical fitness, (2) report lower levels of fatigue, (3) report less mood disturbances, higher levels of daily activities and an improved health-related quality of life, (4) have a higher partial and full return to work rate compared to stem cell transplantation survivors who received standard care only.

In addition, the high intensity strength and interval exercise program is more cost-effective compared to current standard care.

Study design

1. T=0: Baseline, 6-12 weeks after SCT and prior to randomisation;

2. T=1: At completion of the 18-week intervention;

3. T=2: 12 weeks months after ending the intervention.

Intervention

Besides the standard care patients in the intervention arm follow an 18-weeks exercise. This program consists of high-intensity resistance and interval training. Before the start of the program, a sport physician will screen the patient and, where necessary adapt the program. Training takes place twice a week (first 12 weeks) and later once a week in physical therapy practices supervised by physical therapists. Patients will train on specialized resistance training equipment and on bicycle ergometers. Furthermore, the physical therapist will coach the patient to maintain an active lifestyle from week 10 onwards.
Resistance exercise consist of six exercises targeting the large muscle groups: (1) vertical row; (2) leg press; (3) bench press; (4) pull over; (5) abdominal crunch; (6) lunge. Indirect one repetition maximum (1-RM) measurements will be performed every 4 weeks for all six exercises. In the first 12 weeks, the resistance exercise consists of two sets of 10 repetitions at 65 to 80% of the 1-RM. From week 12 onwards it comprises of more repetitions (20 repetitions per set) at a lower resistance (35-40%).
Before and after the resistance exercise patients cycle two times eight minutes with alternating resistance. To determine right resistance a steep ramp test will be performed every 4 weeks. With this test the subject is instructed to cycle at a speed between 70 and 80 rpm, starting at a work rate f 25 Watt for 30 seconds. Hereafter the load is increased by 25 watt every 10 seconds till exhaustion. Maximal short exercise (the maximal workload, MSEC) is recorded. In the first 8 weeks, blocks of 30 seconds at 60% will be alternated with blocks of 60 seconds at 30%. From week nine onwards, the duration of the latter block is reduced to 30 seconds.
The counselling is based on the Onco-Move program ('Every Step Counts). Patients will be encouraged to achieve and maintain a physically active lifestyle including moderate to vigorous activities for a period of at least 30 minutes 4 to 6 days per week. An information folder wherein information about physical activity and desired intensity based on the Borg

Scale of perceived exertion will be given to the patient. During the counselling sessions, the physical therapist will verbally explain the information. Besides for providing information, the sessions will be used for filling out the activity diary of the previous weeks, evaluate experienced difficulties with being active and formulate objectives for the coming period.

Both the patients in the intervention arm and the patients in the control arm receive standard care. However, since currently the usual care is not standardized, the care will vary according to doctors' and patients' preferences. Patients in the control arm are allowed to participate in sports.

Contacts

Public
Meibergdreef 9, A01.386
S. Persoon
Amsterdam 1105 AZ
The Netherlands
+31 (0)20 5668387
Scientific
Meibergdreef 9, A01.386
S. Persoon
Amsterdam 1105 AZ
The Netherlands
+31 (0)20 5668387

Eligibility criteria

Inclusion criteria

1. Diagnosed with multiple myeloma in first line or with (non-)Hodgkin's lymphoma in first relapse and treatment with HDC and autologous SCT 6 to 12 weeks ago;

2. Age between 18 and 65 year;

3. Sufficiently recovered from the stem cell transplantation and having peripheral blood recovery;

4. Ability to cycle on a bicycle ergometer against a load of at least 25 watt;

5. Ability to walk at least 100 meters independently without crutches, canes or walking frame;

6. Written informed consent.

Exclusion criteria

1. Tandem autologous-allogenic stem cell transplantation;

2. Severe cognitive impairment;

3. Severe emotional instability;

4. Insufficient mastery of the Dutch language;

5. Presence of extensive osteolytic lesions with risk of fracture;

6. Serious cardiopulmonary and cardiovascular conditions;

7. Other disabling comorbidity interfering with the intervention program or influencing outcome parameters (a.o. having a pacemaker, epileptic seizures and poorly regulated diabetes mellitus);

8. Severe infections;

9. Relapse/progression of disease.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)
Control:	Active

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-03-2010
Enrollment:	125
Type:	Anticipated

Ethics review

Positive opinion Date:	27-05-2010
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL2216
NTR-old	NTR2341
Other	METC AMC : 10/106
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results
N/A