Effects of a supervised exercise program on insomnia in patients with non metastatic breast cancer undergoing chemotherapy

Chloé Drozd[1], France; Elsa Curtit, France[2]; Fabienne Mougin-Guillaume[1], France

[1] Unit research SINERGIES, Sport Science Faculty, University of Franche-Comté, Besançon
[2] INSERM U1098 RIGHT, University of Franche-Comté; Department of Medical Oncology, University Hospital, Besançon

INTRODUCTION

- In breast cancer woman : **insomnia** is frequent (≈ **20%** of patient undergoing chemotherapy) (1)
- Cancer **diagnosis** and treatment **side effects** can cause insomnia
- Although it is now accepted that **physical activity reduces** treatment **side effects**, few studies have investigated the impact of intermittent aerobic exercise retraining on cancer-induced insomnia

To evaluate the effects of a 12-week intermittent aerobic exercise program on insomnia in patients with non-metastatic breast cancer

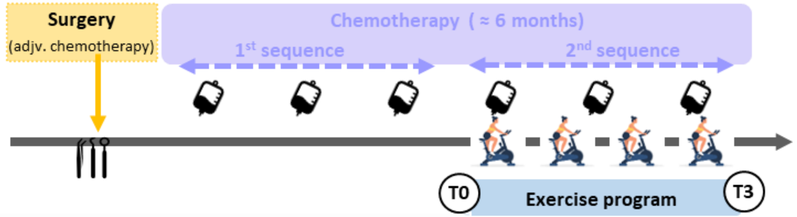
(1) Savard, J., Simard, S., Blanchet, J., Ivers, H., & Morin, C. M. (2001). Prevalence, clinical characteristics, and risk factors for insomnia in the context of breast cancer. Sleep, 24(5), 583-590.

METHOD

24 patients (46.1 ± 7.6 years)

Adjuvant (n=17) or **neoadjuvant** (n=7) chemotherapy

Randomly allocated: → Control group (n=12) with usual care only
→ Training group (n=12)



Assessment before (T0) and after exercise program (T3)
- Clinical interview (DSM-5)
- Questionnaires (ISI, PSQI, ESS, HADS)
- Sleep diary (2 weeks)
- Objective sleep parameters (PSG, actigraphy)
- Salivary melatonin rhythm (DLMO)
- Core body temperature rhythm (thermo buttons)
- Cardiorespiratory fitness (maximal graded exercise test)
- Fatigue (MFI-20) and pain (BPI)

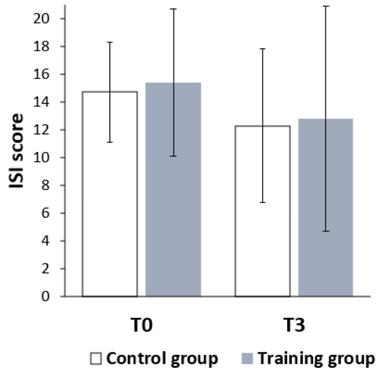
Aerobic interval training: **Sessions of 45 min 3x/ week for 12 weeks**

FATSOMCAN study protocol BMC Cancer

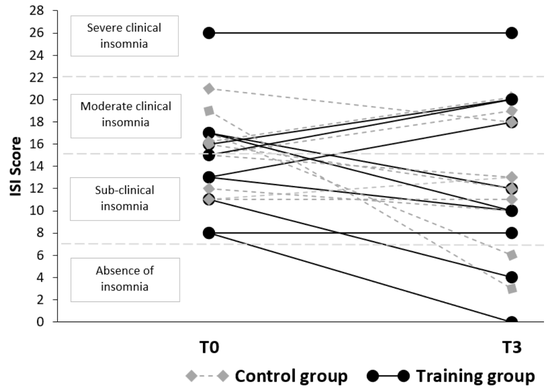
Figure: Study design and time assessments

PRELIMINARY RESULTS

Subjective insomnia by group and inter-individual

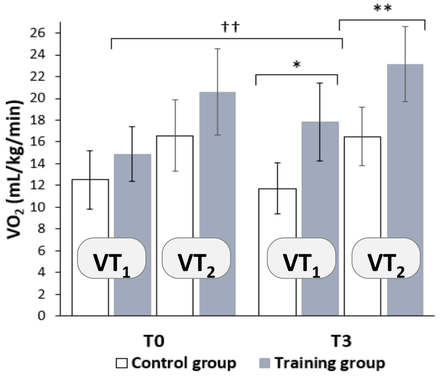


ISI score ↘ in CG and TG



High variability of ISI score in CG and TG

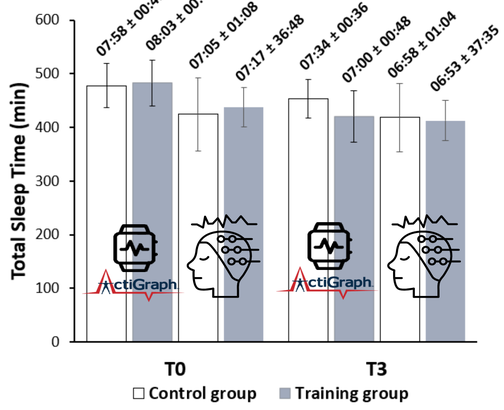
VO_2 at 1st and 2nd ventilatory threshold (VT_1 VT_2) during the maximal graded exercise test



* p<0.05 ** p<0.005 significant inter-group difference at T3 ; †† p<0.005 significant difference between T0 and T3 in the training group.

Significant delayed in VT1 and VT2 in TG

Total sleep time by actigraphy and polysomnography (PSG)



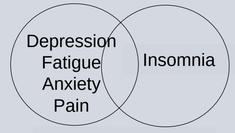
Total sleep time ↘ in TG

DISCUSSION AND CONCLUSION

At this stage of the study:

- Retraining had no effect on subjective insomnia (as measured by ISI) or on increasing total sleep time (as measured by actigraphy and PSG)
  → 3 patients had sleep apnea and 2 had periodic limb movements
- Cardiorespiratory parameters improved in training group (VO_2, heart rate, power, ventilatory flow, tidal volume) → **better physical condition**

Ongoing analysis → future results
- Circadian variables: salivary melatonin and core body temperature
- "Symptom cluster" → correlation with anxiety, pain ?



Symtom cluster

Multifactorial origin of insomnia → heterogeneity of patients → personalized care (i.e. Exercise + TCC-I, relaxation, pycho-education...)