Deutsche Sporthochschule Köln
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Exercise in Pediatric Oncology in the context of CRF

- Challenge, implementation, aims -

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Challenge

Pediatric Oncology in Germany

- Reported cases aged under 18 years in 2017: 2216 (population aged under 18 years: 13.4 million)
- Prognosis of cases aged under 15 years: 82% currently survive a cancer diagnosis at least 15 years
- Most frequent diagnoses: Leukemia 30.2%, CNS tumors 23.8%, Lymphomas 14.4% (all GCCR, 2018)
- 63 Pediatric Oncology Hospitals

CRF in Pediatric Oncology

- No national prevalence data available. Lack of validated German CRF assessments and sufficient therapy
- International data show a prevalence of 36% - 93%, with higher level of fatigue among patients submitted chemotherapy, affecting between 70% - 100% (NCCN, 2015; Chang et al., 2013)

CRF and exercise

- 3 relevant review article with a total of 9 studies concerning exercise and CRF (Chang et al., 2013; Lopes-Junior et al., 2015; Rustler et al., 2017) Significant effect of exercise intervention in reducing general fatigue (effect size= -0.76)
- Studies difficult to compare because of different study characteristics (e.g. sample, setting, study design, type of cancer, intervention, duration and intensity of intervention)

Implementation

Study	Demographics Time point Activity level	Prevalence of CRF	Main results on CRF	Further results
PAPO (Platschek et al. 2017a; 2017b, 2019)	N=9; Age=14.8±9.8 years Begin of study: 58.2±62.0 days after diagnosis Activity level: 6.4±2.1 h before diagnosis 2.4±1.9 h begin of study (p=0.001) ↓	**77.8%**	Overall Fatigue Score ↗ 66.0±17.4 pre intervention 75.6±18.8 post intervention (n.s.) Fatigue related to sleep rest ↑ 59.3±22.2 pre intervention 75.9±21.1 post intervention (p=0.022)	Feasibility ✔ No drop out ✔ No adverse events ✔ Mood ↑
ChiMove (Platschek et al. 2019)	N=12; Age=13.3±2.5 years Begin of study: 14.8±9.8 days after diagnosis Activity level: 5.4±1.7 h before diagnosis 1.6±1.6 h begin of study (p<0.001) ↓	**86.4%**	Overall Fatigue Score → 67.9±10.9 pre intervention 62.7±18.9 post intervention Fatigue related to sleep rest → 57.3±16.3 pre intervention 53.5±25.2 post intervention	No drop out ✔ No adverse events ✔ In progress
PAPO & ChiMove (Platschek et al. 2018a; 2018b)	N=15; Age=12.1±2.9 years CRF questionnaire: 111.1±35.8 days after begin of therapy Activity level: 6.0±1.9 h before diagnosis 2.1±1.9 h begin of study (p<0.001) ↓	**82.5%**	Children with higher activity level before disease show a significant higher CRF score during cancer therapy (r=0.72, p=0.002) Children with higher activity in month during disease show a significant higher CRF score during cancer therapy (r=0.59; p=0.021) Older children show a lower CRF score (r=-0.33; p=0.233)	In progress

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- 63 Pediatric Oncology Hospitals → only 11 hospitals (17.5%) offer exercise intervention!

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Aims

Increase of exercise therapy in Pediatric Oncology (in Germany) for reducing side effects like CRF

- Only 11 out of 63 pediatric oncology hospitals generally offer exercise intervention in Germany, mostly within scientific studies
- Educational work and interdisciplinary cooperation are required

Evidence-based guidelines regarding exercise in Pediatric Oncology

- Guidelines or recommendations (national and international) are needed
- Because of missing guidelines, in Germany exercise intervention in pediatric oncology is not covered by health insurance

Further studies, also in context of CRF

- Training science / basic science / multidisciplinary science / collaborative work are needed
- Questions to be answered: What is best practice? How can the greatest possible effects be achieved against side effects, especially CRF? How is the CRF during the different cycles of chemotherapy? How is the CRF during complete cancer therapy? How is the relationship and development of central nervous brain activity, cognitive performance and CRF depending on the level of activity? …

Literature

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