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Effects of a physical activity intervention in children attending child care (Youp'là Bouge program): a cluster-randomized controlled trial

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Background/Introduction

Physical activity (PA) is of high importance for health promotion in young children. Child care centers provide an access to large numbers of young children and a favourable environment to promote healthy behaviour. The Youp'là Bouge program is part of the cantonal health programs and aims to increase PA and reduce sedentary behaviour in child care centers. Thereby, the effectiveness of this program regarding motor skills, obesity, PA and quality of life was assessed.

Methods

58 child care centers in the cantons of Jura, Neuchâtel and Vaud were randomly selected and 1:1 assigned to a control and an intervention (Youp'là bouge program) group. The Youp'là bouge program supports unstructured PA by providing regular workshops for educators, adapting the built environment of the childcare such as playground, mobile and fixed equipment, providing time for PA and involving parents. Primary outcome measures were motor skills (assessed by an obstacle course consisting of 5 motor tasks). Secondary outcomes included BMI, PA (accelerometers) and quality of life (PedsQL™ questionnaire).

Results

Of the 1616 children, 1467 (91%, age 3.3 ±0.7 yrs, 46% girls) participated in the study. Due to a mean attendance at child care of 48%, 533 children (BMI 16.2 ± 1.2 kg/m^2, 12% overweight, 1% obese) were present on the motor test day at baseline. Over the 9 months of the program, there were no intervention benefits in motor skills, BMI, PA or quality of life (all p>0.1). The intervention effects on PA were modified by the child's attendance (p=0.03) and were improved in the subgroup of children attending the child care at least 50% of the weekdays (p=0.047). Within the intervention group, we identified predictors that were associated with improvements in motor skills (dedicated movement space, stronger involvement of parents through reunions), BMI (motivation and number of specifically educated educators) and PA (dedicated movement space, number of specifically educated educators, type of equipment, all p<0.05).

Conclusion

This PA intervention in child care centers did not lead to improvements in motor skills, BMI, PA or quality of life which demonstrates how hard it is to change behaviour. Duration of the intervention, attendance at child care, higher involvement of parents and educators and factors related to movement space and equipment may be predictive for improved outcomes. As many programs have to balance between effectiveness and feasibility outside of a research setting, taking these factors into account may improve outcomes in such programs.

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A rare cause of ACTH ectopic production

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Introduction

A 19-year-old woman, healthy till few months before, was admitted to hospital because of a severe Cushing's syndrome. She had developed over the past three months a rapidly progressive truncal obesity, hirsutism, purple striae, amenorrhea, severely impaired memory and emotional lability. Arterial hypertension and diabetes mellitus were present. Her physician found before hospitalisation a high morning cortisol (2005 nmol/L, normal range 170-540 nmol/L), hypokalemia and metabolic alcalosis.

Diagnostic procedures

Low-dose (1 mg) and high-dose (8mg) overnight dexamethasone did not suppress cortisol concenatrations. The 24-hour urinary free cortisol was 25-fold increased above normal range (6216 nmol/L). ACTH concentration was 32ng/l (10-57 ng/l) CRH-test did not increase ACTH- or cortisol-levels. A 6-cm-pancreatic mass with multiple liver metastases and a thrombosis in the vena lienalis was discovered by CT-scan (cervical/thoracic/abdominal). In the transcutaneous biopsy of one of the hepatic metasasis a poorly differentiated neuroendocrine pancreatic carcinoma G3 (pancreatoblastoma) was diagnosed.

Therapy and course

We started a single-drug adrenal suppressive therapy with metyrapone. Due to a complete lack of response, etomidate and ketoconazole were then added. Cortsiol levels decreased under this treatment Metyrapone was stopped due to worsening of thrombopenia. Three days later liver failure occurred and ketoconazole had to be discontinued. Surgical adrenalectomy was first considered but not performed because of the highly advanced oncologic situation. Two days later a large liver hematoma with arterial bleeding was documented by a CT-scan. Because of multiple arterioportal and arteriovenous shunts seen in liver angiography no selective embolization could be performed. Unfortunately, six days after admission, the patient died of a massive intraabdominal hemorrhage before starting any chemotherapy.

Conclusions

An ectopic ACTH-producing neuroendocrine pancreatic tumor is a rare cause for an ectopic ACTH dependent hypercortisolism. A surgical procedure should always be rapidly considered but was not possible in this case due to the rapid deterioration of liver function and non-treatable hepatic bleeding. A very fast progression of symptoms and clinical signs of a Cushing's syndrome highly rises the probability of an underlying malignant tumor as cause of the pathology.

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Acne, hypertrichosis and abdominal pain in a 54 year-old woman

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Case report

A 54 year old woman presented with 6 months' history of acne, hypertrichosis, plethora and diffuse right sided abdominal pain. Recently, she had to give up her job as a professional singing teacher because of vocal break. There was no history of high blood pressure, paroxysms, headache, weight gain or striae rubrae. Laboratory results showed an elevated free testosterone of 100 pmol/L (normal range 1-22), an elevated total testosterone of 5.5 nmol/l (normal range 0.5-2.6) and DHEA-S of 27.1 umol (normal range 0.5-7.0). Red blood cell count were also increased (hemoglobine 185 g/l and hematocrit 54%) as well as the salivary midnight cortisol level of 21.7 nmol/l (normal range < 8.0). Plasma metanephrines and aldosterone/renin were in the normal range. Abdomen CT showed a tumour of the right adrenal gland of 17 cm with compression of vena cava and shift of liver and right sided kidney to the left. Immediate open adrenalectomy was performed, and histology confirmed the diagnosis of an adrenal carcinoma.

Comment

Adrenocortical carcinoma (ACC) is rare with an incidence of approximately one to two per million per year. Most ACC are sporadic, however, they may be part of hereditary cancer syndromes like MEN type 1 and Wiedemann-Beckwith syndrome. Approximately 60 percent of ACC are secretory. Adults with hormone-secreting ACC usually present with Cushing's syndrome or a mixed Cushing's and virilization syndrome with simultaneous overproduction of glucocorticoids and androgens. Virilization alone occurs in a minority of cases. Diagnosis is based on CT, and staging in adults depends on tumour size, infiltration, and occurrence of thrombosis into the caval and kidney veins, lymph nodes and distant metastases. Five-year disease-specific survival rates are stage dependant and range between 0% and 82%. Treatment includes surgical tumour resection and adjuvant therapy with mitotane.

Conclusion

Adrenocortical carcinoma are rare and aggressive tumours that may be secretory and cause Cushing's syndrome and virilization, and must be taken into consideration in females with new onset of acne and virilization.

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Subclinical hyperthyroidism and the risk of coronary heart disease and mortality: an individual participant data analysis from ten prospective cohorts

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Background/Introduction

Data from prospective cohort studies regarding the association between subclinical hyperthyroidism (SHyper) and cardiovascular outcomes are conflicting. This might reflect differences in participants' age, gender, thyroid-stimulating hormone (TSH) levels or preexisting cardiovascular disease (CVD). We examined the risks of total and coronary heart disease (CHD) mortality, CHD and atrial fibrillation (AF) events associated with endogenous SHyper.

Methods

Individual data from 52'674 participants with 501'922 person-years of follow-up were supplied from 10 prospective cohorts in the United States, Europe, Brazil and Australia. The risk of CHD events was analyzed in 22'437 participants from 6 cohorts with available data and incident AF in 8'711 participants from 5 cohorts. Euthyroidism was defined as TSH 0.45-4.49 mIU/L and endogenous SHyper as TSH <0.45 mIU/L with normal thyroxine levels after excluding those with thyroid-altering medications.

Results

2'188 had endogenous SHyper (4.2%) and 50'486 were euthyroid. During follow-up, 8'527 participants died (including 1'896 from CHD), 3'653 had CHD events and 785 had incident AF. In age- and gender-adjusted analyses, SHyper was associated with a hazard ratio (HR) of 1.24 (95% confidence interval [CI], 1.06-1.46) for total mortality, 1.29 (CI 1.02-1.62) for CHD mortality, 1.21 (CI 0.99-1.46) for CHD events and 1.68 (CI 1.16-2.43) for incident AF. Risks did not differ significantly by age, gender, or preexisting CVD and were similar after further adjustment for cardiovascular risk factors. The risks of CHD mortality and incident AF (but not other outcomes) were significantly higher in participants with baseline TSH <0.10 mIU/L than those with TSH of 0.10 to 0.44 mIU/L (both p for trend ≤ 0.03).

Conclusion

Endogenous SHyper is associated with an increased risk of total mortality, CHD mortality, and incident AF, with higher risks of CHD mortality and AF with TSH below 0.10 mIU/L. Future trials should assess the impact of treatment of SHyper on these risks.

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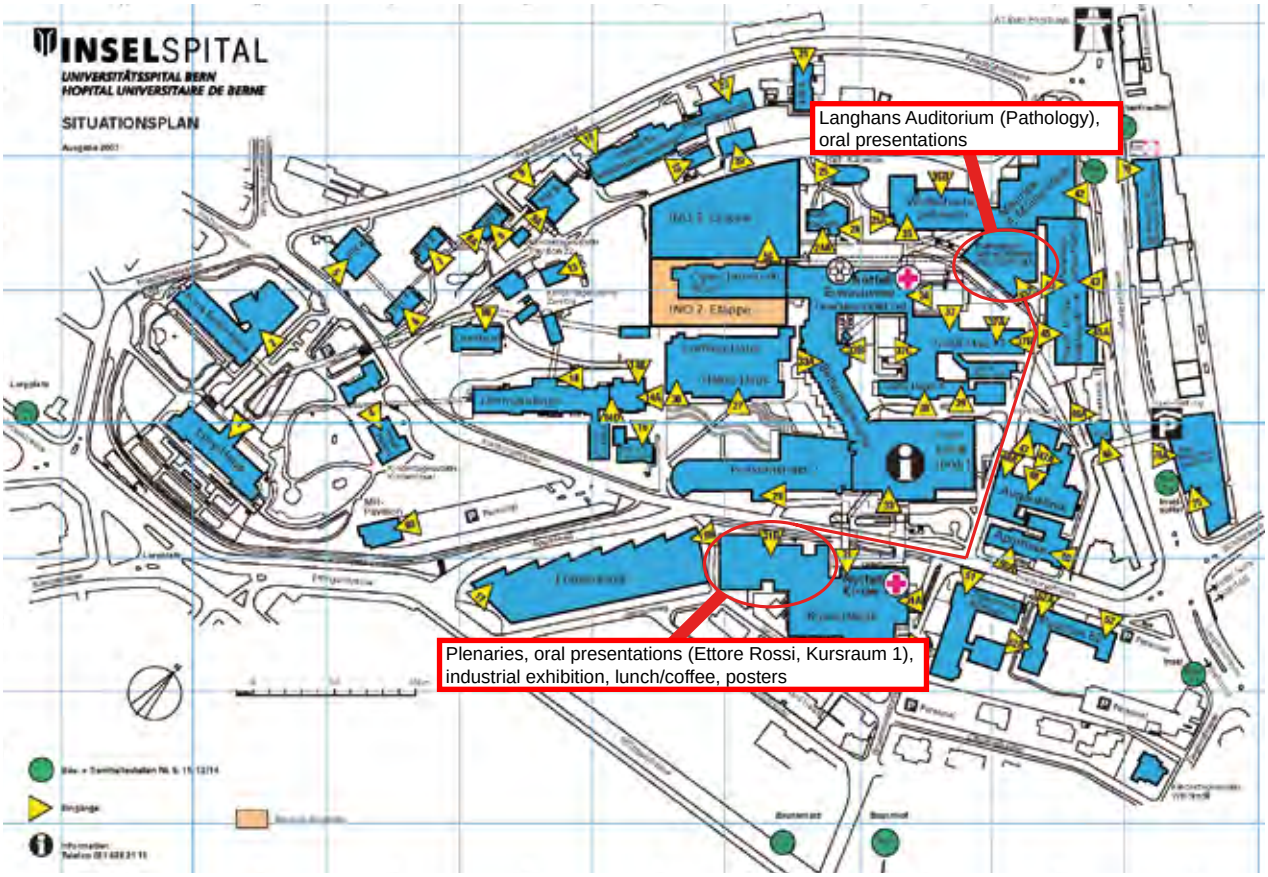

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