Background: exercise is one of the main factors for the successful treatment of obesity. It is known that with increasing age, muscle strength (sarcopenic obesity) decreases in an obese patient, which can lead to early disability and an increased risk of falls. Regular exercise therapy increases the functional capacity of the cardiovascular system, prevention of obesity among the population, as well as treatment for persons with sarcopenia and obesity. Therefore, it is relevant to study muscle function in obese patients while using kinesiotherapy.

Objectives: was to estimate the affect of complex 3-week treatment with 4 kinesiotherapy methods on body weight loss and muscle function in patients with obesity.

Methods: 80 men and women aged 21-69 years old with alimentary obesity were enrolled in the study (mean age 52.4±11 years, weight 111.3±24.5 kg, BMI 40.3±8.1 kg/m², waist circumference WC 113.4±16 cm, hip circumference HC 124.2±16 cm). The complex kinesiotherapy administered daily for 3 week and included interactive sensorimotor trainings on double unstable platform, kine-siohydrotherapy in a pool, special complex of physical exercises in a gym and ergocycle trainings. Weight, WC, HC, fall number for last 3 weeks were measured at baseline and after the treatment was completed. Muscle strength and walking speed functional tests results assessment (10-meters-walk test, Up-and-go test, 4 special tests for back and abdomen muscle endurance to static and dynamic loading) were performed at baseline and in 3 weeks.

Results: there was a significant reduction in body weight (111.3±24.4 kg at baseline vs 107.9±23.1 kg in 3 weeks; p=0.000), in BMI (40.3±8.1 vs 39.1±7.7 kg/m²; p=0.000), in WC (113.4±15.9 vs 109.2±15.1 cm; p=0.000) and in HC (124.1±15.5 vs 119.7±14.1 cm; p=0.000) in treated obese patients. 10-meters-walk speed increased from 0.84±0.15 m/sec at baseline to 0.88±0.17 m/sec in 3 weeks (p=0.000). Up-and-go test results improved from 8.4±2.1 to 7.9±2.09 sec (p=0.000). We registered statistically significant elevation of the endurance to static loading in abdomen muscles from 13.1±9.7 to 16.49±12.8 sec (p=0.000) and in back muscles from 14.8±11.9 sec to 18.6±14.9 sec (p=0.000). The endurance to dynamic loading increased in abdomen muscles from 29.9±11.2 to 34.84±11.93 times (p=0.000) and also in back muscles from 9.1±7.4 to 12.2±9.2 times (p=0.000). Fall number markedly decreased from 0.14 ±0.34 at baseline to 0.0 (95%CI: 0.02; 0.25) after completion of treatment.

Conclusion: investigated complex treatment with 4 kinesiotherapy methods promotes body weight loss, WC and HC reduction in obesity. 3-week special training of obese patients is associated with increasing in gate speed and lower extremities muscle strength, and it also causes improvement in static and dynamic loading endurance of back and abdomen muscles. Those changes may probably improve balance function and decrease risk of falling in obese patients.

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Pediatric Rheumatology – Basic and translational science

POS0067

HIGH DEGREE OF INTER-PATIENT HETEROGENEITY IN SYNOVIOCYTE HYPERPLASIA AND IMMUNE CELLS INFILTRATION IN THE SYNOVIUM OF JUVENILE IDIOPATHIC ARTHRITIS PATIENTS

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Background: Increasing evidence indicates that synovial tissue analysis can deliver pathophysiological insights but also individual clinically-relevant information in adult-onset inflammatory arthritides. Little is known about synovial pathology in juvenile idiopathic arthritis, especially regarding inter-patient variability of histopathological features.

Objectives: To assess the heterogeneity of main synovial features (synovio-cyte hyperplasia and immune cells infiltration) in juvenile idiopathic arthritis (JIA) patients and a cohort of young adults (<30 years old) with early rheumatoid arthritis (RA).

Methods: Synovial biopsies were sampled using needle arthroscopy or ultrasound (US) guided biopsy during intra-articular joint injection. Tissue was embedded in paraffin then sections were stained with hematoxylin and eosin. Synovio-cyte hyperplasia (SH) and immune cells infiltration (ICI) was assessed by an experienced pathologist on a 0 – 3 scale where 0 represents the absence of the feature and 3 the highest level.

Results: 34 JIA patients (age (median ±SD): 15.5±6.47 years, oligo-articular JIA n=28/34, polyarticular JIA n=6/34, ANA-RF-ACPA positivity=56%-10%-3%) and 22 RA (age (median ±SD): 24.3±2.6 years, ANA-RF-ACPA positivity=10%-36%-32%) patients were included. Synovial tissue was obtained from knee (n=49/56), wrist (n=4/56) or metacarpophalangeal/intercarpalphalangeal joints (n=3/56), using US guided biopsy in 27% of patients and needle arthroscopy in 73%.

Individual scores of SH and ICI were correlated in both JIA (Spearman's r=0.503, p value=0.0024) and RA (Spearman's r=0.636, p value=0.0015). There was no significant difference in SH and ICI scores between the 2 groups (SH score (Q25-Q50-Q75) in JIA= 0.5-1.125-2 and in RA = 0.75-2-2; ICI score (Q25-Q50-Q75) in JIA= 1-2-2 and in RA = 0.75-2-2.25). Intra-group variability of the two assessed features was comparable between the 2 groups (SH coefficient of variation: 72.2% for JIA and 68.2% for RA; ICI coefficient of variation: 52.2% for JIA and 71.2% for RA). Within JIA patients, there was no significant difference in SH/ICI scores between groups based on ANA positivity, oligo or polyarticular involvement nor ongoing treatment.

Conclusion: Studying main histological features of synovitis, we found no difference between JIA and young RA patients. Furthermore, we report a similar degree of inter-patient heterogeneity in synovial pathological features of JIA and RA patients. These variations were not explained by common clinical characteristics. Whether they relate to different molecular signatures as suggested in adult RA will be further investigated using bulk tissue RNA sequencing.

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POS0068

HIGH LEVELS OF PORPHYROMONAS GINGIVALIS AND PREVOTELLA INTERMEDIA ANTIBODIES IN CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS

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Background: Idiopathic juvenile arthritis (JIA) is a heterogeneous group of pathologies whose origin remains unknown at present (1). They are characterized by a systemic inflammatory and joint disease affecting children under 16 years of age. The current classification groups the different forms of JIA into 7 distinct entities (systemic forms, polyarticular forms with or without rheumatoid factors, oligoarticular forms, inflammatory arthritis associated with enthesopathies (ERA), arthritis associated with psoriasis and unclassifiable arthritis). Exact etiology of JIA is still unknown. To date, the various hypotheses put forward on the occurrence of JIAs integrate the genetic and environmental framework.

The link between periodontal disease and rheumatoid arthritis (RA) is largely reported. Recently, *Porphyromonas gingivalis* (*P. gingivalis*) infection explained the occurrence of arthritis in rodent and in RA (2). Several studies mention the beneficial effect of *P. gingivalis* treatment on disease activity.

Currently, there are very few studies on the prevalence of *P. gingivalis* in patients with JIA and the possible involvement of the germ in the development of inflammatory joint diseases in the pediatric population(3)(4).

Objectives: The objective of our study is to determine presence of high IgG antibodies against *P. gingivalis* and *Prevotella Intermedia* in a cohort of patients with JIA compared to a control population and to determine variation of level according to sub-classes of JIA.