P32: Whole Body Vibration In Juvenile Idiopathic Arthritis - A Pilot Study

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Purpose: A high percentage of children with juvenile idiopathic arthritis (JIA) are affected by significant deficits of muscle mass and bone mass. Deficits in muscle force and power are thought to be the most important factor affecting bone mass in JIA. Despite regular physiotherapy, these changes persist especially in polyarticular JIA and also occur in patients who achieve remission. Whole body vibration (WBV) might be an interesting technique to improve muscle function, although arthritis has been considered a contraindication for WBV so far. The aim of this pilot study was to assess the safety of WBV in JIA.

Methods: Patients suffering from the oligoarticular or polyarticular form of juvenile idiopathic arthritis who did have an episode of active arthritis involving the knee joint within the year preceding the study but had been in remission for a minimum of 8 weeks before study entry were eligible to participate in a 3-months, home based, whole body vibration training using the GalileoTM platform. Before study entry and at the end of the study, a MRI of the affected knee was performed to assess the synovia and synovial fluid as well as the joint contour. Every month, muscle force and power were assessed using a standardized one leg jump and two leg jump on the Leonardo™ force plate.

Results: 5 Patients have completed the study so far. 4 of these patients accomplished the three months study period without any side effects. One patient had to finish training after two months due to a generalized relapse of his arthritis following a gastrointestinal infection. The median increase in force for all patients was 30 % and the median increase in power was 15%. No abnormalities on MRI were seen in the four patients who completed the study regularly.

Conclusions: Whole body vibration can be used in JIA with improvements in muscle force and power. This might be important following periods of active disease to quickly regain muscle function and prevent long-term disturbances of the musculoskeletal system. It may nevertheless be anticipated that a certain percentage of patients will not be able to do the intervention.