SIG Mobility: in-between meeting Barcelona

September 30th & October 1th 2011

"Treatment of balance and gait in MS"

Last 30th of September and 1st of October took place the 14th edition of the SIG in-between meeting on Mobility in Barcelona, Spain. The meeting was organized by the Hospital de Dia of the MS Foundation CEMCat, gathering a total of 49 participants from 13 different countries and almost 30 different centers around Europe. The group was composed largely by physical therapists, although in this edition also attended occupational therapists, physical educators, rehabilitation physician and neurologists.

The conference included scientific presentations, practical sessions and discussion groups around the multicenter studies that are being conducted at present. The chairmen of the group, Peter Feys and Paul Van Asch, remarked the importance and satisfaction of counting on new members each edition, but also of fostering loyalty of those who are members from long ago.

Some of the most interesting topics on Friday morning session revolved around fall prevention, measurement of dynamic balance and different balance treatment approaches. Angela Davies Smith (UK) opened the session talking about the frequency, impact and causes of falling in MS. Her conclusions were that falling is frequent in MS regardless of level of disability and the use of technical aids for ambulation. Because of that, mobility, daily activities and lifestyle are frequently affected. Davide Cattaneo (Italy) talked about balance rehabilitation and fall prevention programs, remarking that since balance disorders can impact strongly on activities of daily living and participation, it is imperative to understand the underlying impairment and intervene appropriately. For that he provided some guidelines for implementation of treatment approaches aimed at improving balance control in daily life and reducing fall frequency. Jiska Kempen (Holland) presented some scales and instruments that can be used for dynamic balance measurement, such as Berg Balance Scale, posturography, and some gait parameters using the GAITRite. Elisa Gervasoni (Italy) talked about the effects of fatigue on balance disorders. In her study she tried to assess if fatigue would affect static and dynamic balance and if treadmill training can reduce fatigue and therefore, improve balance. In conclusions, the findings were that immediate fatigue does not influence balance and that treadmill training showed positive effects on fatigue but these effects did not transfer to balance skills.

There were some sessions dedicated to different approaches for treating balance in MS. Sheila Lennon (UK) presented a group circuit training for balance & mobility. This project, that is still running, has enrolled 177 patients to date. Final outcomes will not be completed until October 2011, but for now feedback from the participants is positive, and a manual has been developed to support therapists in delivering this intervention. The findings hopefully will add to the limited evidence base for group exercise therapy for people with MS in the community and also improve accessibility to therapy. Valerie Block (Spain) presented hippotherapy as a useful physical therapy tool that can but used in conjunction with standard treatment for MS patients. She explained how a walking horse can provide a constant 3D movement on the pelvis of the rider that has a positive functional effect on normalizing the hip muscular tonus and motion, and improving balance and coordination, necessary for normal gait. Before lunch a practical session on balance exercises that were presented firstly by Carme Santoyo (Spain) and then conducted by Juan Carlos Salinas (Spain), who focused on exercises

specifically devoted for postural awareness and static and dynamic balance training in MS.

On Friday afternoon, the topics revolved around specific neurological approaches and technical devices for balance and gait disorders. Tori Smedal (Norway) talked about the effect of Bobath therapy and climate on balance and gait in patients with MS. She introduced the basis of the Bobath concept to facilitate the recovery process and relearn motor control with a case control study and afterwards presented a randomised cross-over study to compare the effect of inpatient physiotherapy in a warm (Spain) versus cold (Norway) climate in a short- and long-term perspective. The results indicated that patients with MS, without heat intolerance may have additional benefits from physiotherapy in a warm climate. Elaine Ross (Ireland) described a novel out-patient exercise programme for MS patients incorporating the Nintendo Wii-Fit ®. In her study the intervention consisted of 8 weekly 60 minute sessions incorporating aerobic training, core stability exercises, balance retraining and the Nintendo Wii-fit ®. The preliminary results showed an improvement in self-efficacy, balance and functional capacity levels in PwMS. Kamila Rasova (Czech Republic) presented a study in which it was evaluated the immediate and long-term effect of induced movement therapy (kind of facilitation physiotherapy) on balance, gait and brain microstructure using different gait and balance scales as well as multimodal MRI. The results confirmed positive immediate and long-term effect of PT in pwMS on balance, gait and brain microstructure.

Josep Medina (Spain) opened a group of lectures devoted to technical devices. He remarked the necessary combination of functional assessment using internationally validated scales with electromechanical equipment and other modern tools for assessing kinetic, kinematic and electrophysiological values, that would provide patients and clinicians enough information to know the precise functional stage of each patient. Technical sophisticated devices help to planify a monitored rehabilitation program and estimulate long term programs but can't supply conventional therapy. Johanna Jonsdottir (Italy) talked about different approaches to gait rehabilitation in neurological disorders. He focused on body weight support system and treadmill that have been used with some success in persons with neurological disorders, as well as task-oriented biofeedback and functional electrical stimulation (FES). There is recent evidence that they may be of help in increasing gait function in persons with neurological disorders. Benoit Gebara (Belgium) described a pilot study using the Wii Balance Board as a rehabilitation strategy in MS. In this study in which 30 MS patients were included, they tried to show the effect of the Wii board on balance and risk of fall, comparing it with a control group. The results were better for the test group. Dennis Hannes (Belgium), presented a new visual cued treadmill training, the C-Mill. By using the virtual visual cues they attempted to increase velocity, step length and improve symmetry during gait. The results of this preliminary study showed an improvement in step length and an overcompensation towards the dominant side. After those lectures there was a time slot for those people interested or participating in the running multicenter studies for questions and proposals.

Saturday session began with Sabine's Lamprecht (Germany) lecture about the motor main symptoms of multiple sclerosis in relationship to balance, focusing on paresis, spasticity and ataxia. Peter Hellinckx (Belgium) presented the effects of 3 weeks whole body vibration training on muscle strength and functional mobility in hospitalized PwMS. In this randomized controlled trial they performed 10 training sessions with static and dynamic standing exercises on a vibration platform, showing an improvement on the BBS and on the 3 MWT compared with the control group, but not on functionality.

After that, two practical sessions were performed. The first one, by Brigitte Gattlen (Switzerland) showed how dynamic stability during gait can be trained according to the PNF-concept. She explained that the loss of trunk and pelvis stability is a major problem by PwMS (ataxia), who mostly find a strategy of compensation by increasing the distal muscle tone, creating stiffness or a fixation in the passive structures. She practiced with the audience some PNF tools to train the dynamic stability, such as approximation stimulus on the pelvis to stimulate vertical forces to support the body mass against gravity, stabilizing reversals to facilitate postural stability (balance) in a defined upright position, or resistance to the trunk or extremities during gait to imitate the constraints of the environment (dog on a lead, for example). In the second one, Hans Van Tongeren (Denmark) used different simple tools such as little cushions, balloons and fitballs to demonstrate how balance and gait can be trained through dual task exercises. By focusing attention in funny, motivating external tools, patients can be trained in a functional, joyfully and non-stressful way.

Monia Verekeen presented the Wheelchair Assessment Instrument for people with MS (WAIMS), a new tool to assess wheelchair driving skills in PwMS. The preliminary results have shown that the WAIMS is a reliable and valid instrument to assess mobility in manual wheelchair users with MS.
Paul Van Asch (Belgium) presented a new hip flexion assistive device for those people with MS with hip flexors paresis in which drop foot orthosis is not a good solution. He described this new, feasible and simple tool with a case report that showed a nice improvement in the velocity and gait pattern. Sif Gylfadóttir (Iceland) presented a community based balance group-training program for people with MS that started in 2009 and that consisted of functional based exercises, sensory stimulation, cognitive activities such as dual tasks, fall reaction training and compensatory practice with technical aids and orthosis. Finally, Greet Adriaenssens (Belgium) presented a proposal to reorganize rehabilitation of MS in Flanders. This proposal is the result of a few years of discussions between interest groups and will be presented to the authorities. She distinguished 3 levels in rehabilitation: function rehabilitation for outpatients, neurological rehabilitation care for episodic acute periods and specific neurological rehabilitation care. For each of these levels advises on infrastructure, staff, expertise, quality standards and monitoring have been formulated.

Carme Santoyo,
Local organizer
Hospital dei Dia, Barcelona, Spain