The PMG conference 2018 was a brand new experience for me, having only recently graduated from university and entering the real world of work as a trainee rehabilitation engineer with the Posture and Mobility Service. PMG was an opportunity to meet with companies, researchers and other clinicians from around the country and to learn from their experiences. At first the scale of the conference was particularly daunting, with the huge numbers of people and the large exhibition hall and exhibitor stands, it felt like I would be lost within no time, however I was soon put at ease by the many helpful individuals and the exhibitors who were keen to explain their products and new concepts to a new audience.

Aside from the exhibition I was very keen to attend the plenary sessions as this was an opportunity to hear about research that is outside the remit of my day-to-day work but that will impact on wheelchair provision for many individuals. I had particular interest in a couple of the topics namely:

* The Reagiro manual wheelchair design
* Cell transplantation research into Huntington’s and Parkinson’s disease
* Selective dorsal rhizotomy (SDR)

Working within a busy wheelchair service where a large number of patients have spasticity, the presentation on SDR was particularly interesting. This was an area of research I had no experience of, but keen to understand as it could have a lasting effect on the treatment of patients with spasticity and their future mobility needs.

Benedetta Pettorini from Alder Hey Children’s Hospital, Liverpool, presented recent research on selective dorsal rhizotomy (SDR). Benedetta covered topics such as the process of SDR, the ideal candidate for SDR and the pros and cons of the procedure. An area that Benedetta was also keen to discuss was the management of expectations of both the patient and the family and the common questions that she faces pre-treatment; “will SDR cure CP?” And “will my child be able to walk after SDR?”

One fact I believe the vast majority of the audience didn’t know before attending this presentation was that the NHS had stopped providing funding for SDR procedures 3 years ago stating that they required more outcome measures and accurate results. Benedetta was extremely pleased to announce that only 3 weeks ago had they been informed that funding would now be available.

Currently spasticity can be managed in a number of ways, most commonly with a Baclofen pump, selective peripheral denervation or selective dorsal rhizotomy. The SDR procedure is irreversible and as such the benefits and potential improvements must be considered before the procedure is carried out to ensure that SDR is in a patient’s best interests. Benedetta stated that when considering SDR as a treatment, pain is used a one of the essential criteria as well as improving function (e.g. walking) and facilitating good patient care (dressing, transfers and sitting).

An ideal candidate for SDR would be considered as an individual who falls into the following categories;

* GMFCS II-III –some sitting ability and some mobility with or w/out assistance
* Muscle strength – able to maintain anti-gravity posture
* Minimal muscle/soft tissue contractures
* Good cognitive/psychological maturity (co-operative)
* Goof family support network

Each case for SDR is reviewed on an individual basis with emphasis on long-term need and realistic improvement. SDR is generally considered for CP patients however it is possible that it will have a positive effect for individuals following a traumatic brain injury where spasticity is present.

Benedetta was keen to stress that SDR is not a procedure suitable for everyone with spasticity, realistic goals must be set to ensure a patient and their family are not expecting the procedure to be a miracle cure. Patients and their families are asked to be as open about their goals pre-operation to ensure their expectations can be managed. A baclofen test and gait analysis can be done pre-op when expectations are unrealistic. This allows Benedetta and her team to gain a snapshot of what a patient will be like straight after the SDR procedure and to enable parents to see what improvements can be expected.

During an SDR procedure the sensory dorsal nerve roots are severed, whilst the patient is lying in the prone position the nerves are tested to ensure they are sensory, there is a risk of cutting motor roots but this is unlikely. The SDR procedure carries risk like any form of surgery for example; worsening motor function, paraplegia, scoliosis and fluid leak. As well as the risks there are pros and cons to the procedure that families must be aware of;

Pros Cons

One time procedure Invasive

No implants Involves cutting of nerve roots

Safe Irreversible

Shown to be effective Results not as positive for upper extremities

The results of Benedetta and her teams work show some real positives in spasticity management. It was found that the vast majority of spasticity was removed (this varies according to GMFCS level as they begin at different levels of ability). The results showed patients experienced decreased spasticity, increased strength, increased mobility as well as an overall persistent improvement over 10 years of the study. Improvements were also seen in speech patterns, oropharyngeal control, fine motor control and cognition. Again these improvements were dependant on the individual and their abilities pre-op.

A challenge for Benedetta and her team is the lack of an ideal outcome measure for SDR treatment, currently they are using a number but they all have their limitations. Benedetta is keen to promote SDR and stated if clinicians are unsure of suitability then refer in and a decision will be made by the team.

Having never heard of SDR before attending PMG I was fascinated to learn of its success and the improvements that patients have achieved. This procedure can be used not only on those with some mobility but also for those unable to walk, to provide them with better posture when seated. This would be of benefit to the patient as well as the clinical team as spasticity can be a challenge during wheelchair provision. I will be looking into the SDR procedure further following this presentation and any further results from Benedetta and her team.

I would like to thank Benedetta for taking the time to discuss her work at PMG and to her and her team for continuing to work in such a challenging area which could provide improvements to many alternative services. I am extremely grateful to have been given the opportunity to attend PMG 2018 as a bursar recipient and for the chance to further my knowledge and experiences as I begin my career.

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