PARKINSON'S UK, EDINBURGH BRANCH

NOTE OF MEETING OF RESEARCH INTEREST GROUP, EDINBURGH, SATURDAY, DECEMBER 2, 2017, 10.30-12.30.

A record audience of over 40 people attended the latest meeting of the Edinburgh Research Interest Group at the Scottish Centre for Regenerative Medicine to hear an inspiring two-part presentation. First, **Tilo Kunath** brought us up to date on the recent history and future prospects for cell therapy for Parkinson's, before handing over to **Leona Braund** whom he had invited to talk about how she is coping since her diagnosis of Parkinson's in her late thirties. Tilo had also arranged to video both talks, and the video is now available to be viewed on the Edinburgh Branch website. There is something in there for everyone, for those interested in the detail of the history of cell transplantation, and equally for those who are trying to find positive ways of coping with their own diagnosis. The full references to the research papers cited by Tilo may be found on his slides, which are incorporated in the video. This brief summary aims primarily to whet the appetite of its readers to watch the video and indeed to join us in future meetings of our group which brings together those who are seeking solutions to their own challenges and those whose research may help those challenged by Parkinson's.

Tilo's presentation began by stressing how Parkinson's differs from Alzheimer's: in the latter, brain atrophy is widespread, while in Parkinson's the loss of dopaminergic neurons is very narrowly localised. Research since the 1970s has been driven by the theory that transplantation of new dopaminergic neurons into the putamen would fix a lot (though not all) of the symptoms of Parkinson's. Swedish scientists, including **Olle Lindvall,** tried to identify a good source of cells, and their work led to the use of nine-week-old fetal cells, which had some success with some of the 300 patients treated. The work was, however, controversial, both in its use of fetal cells and in the subsequent emergence of graft-induced dyskinesias, which meant that some of those who were treated with the graft became worse, not better. Tilo next described the work of **Roger Barker** and his team on meta-analysis of multiple cell transplantation clinical trials, published in 2013, and subsequent efforts to bring cell therapy back, incorporating what has been learned both about cells and about Parkinson's since the 1980s. Tilo highlighted the problems of using fetal tissue: ethical issues, poor and unpredictable supply of tissue, and poor quality and heterogeneity of tissue. The current work uses stems cells of two types: embryonic stem

cells from IVF clinics and induced pluripotent stem cells which can be produced from blood or skin cells of any adult. Tilo then described the work of **Lorenz Studer** and his team on developing midbrain floor plate tissues[1] from human embryonic stem cells. Research in transplanting these embryonic stem cells is still at the stage of experimentation on rats, but progress is being made on understanding how the grafts work and what the condition of the brain needs to be for it to be receptive to those grafts. Tilo's positive conclusion was that the road to human clinical trials has started!

Leona next took the stage, adopting a seated position to make her first important point about health and well-being with Parkinson's: do what is comfortable for you. As a former PE teacher, she had initially found her diagnosis with a genetic form of Parkinson's hard to deal with, but has developed very positive personal strategies for coping, avoiding stress and embracing new activities, physical exercise, laughter and stillness. Her inspiring talk drew on a quotation from George Bernard Shaw:

> *'You don't stop playing because you grow old: you grow old because you stop playing.'*

We enjoyed hearing of her new passion for cycling, including her delight in out-performing her Parkinson's nurse in one activity and learned a lot from her enthusiasm for remaining engaged physically and mentally, challenging her body and her brain in order to slow the process of deterioration and also to make her happy. Her over-riding message to people with Parkinson's was to take the advice of health care providers, but also take some control themselves and find what works for them and what makes them happy.

The audience reaction, both in the question time and in the lunch which followed, showed how well this 'double act' had been received and we were very grateful to both speakers for giving their own very different, but mutually enriching, perspectives.

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[1] Technical aside: The floor plate is a structure integral to the developing nervous system of vertebrate organisms. Mid-brain dopaminergic neurons develop in the immediate vicinity of the floorplate.