Patient Presentations to Professionals: continued from page 5.
She presented data from a quality of life survey where 79% felt better since they had been on treatment.

Marina Terekhova from Russia and **Elena Martynenko** from Ukraine spoke about the situation in their countries and how through working in partnership with Government, the EGA and Genzyme Corporation, patients had gone from no treatment, to receiving humanitarian treatment through Genzyme's ECAP, with some patients receiving treatment paid for by their own Governments.

Personal Experience of Clinical Trial

Tanya Collin-Histed of the UK Gaucher Association gave a personal account of being a parent of a child on a clinical trial. She outlined the importance of clinical trials being patient centred and highlighted the anxieties and challenges that patients and their family may come across.

She said that in any clinical trial, three parties are involved: the pharmaceutical company; the investigators (usually doctors and nurses) and the patients. These parties have the same ultimate goal to gain information or to achieve an effective therapy but each also has its own priorities. The impact upon, and the potential benefit to, patients both as a group and as individuals taking part in the trial, must however remain paramount.

'It is essential to consider how invasive, intrusive or distressing different aspects of the trial will be and avoid these unwanted elements if at all possible. The expectations of the individual patients involved and their families should be considered at all times and every possible outcome addressed before a trial starts. The need to push back the boundaries of human knowledge need to be balanced against the impact on individuals.'

ECAP

As Chairman of the ECAP (European Cerezyme Access Programme) Medical Advisory Board, **Dr Carlo Incerti** of the Genzyme Corporation outlined the development of the programme since its inception in 2004. 101 patients from 13 countries are now receiving treatment by humanitarian aid.

Earlier Jeremy Manuel had quoted **Henri Termeer**, (Chief Executive of Genzyme Corporation) commitment to ECAP patients: 'Once a patient is on treatment, it is a lifetime commitment'. The Medical Advisory Board had established guidelines ensuring appropriate management and treatment for patients with life-threatening and severe disease.

European Working Group on Gaucher Disease – continued from page 4
The ABRs were recorded in five children with Type 3 Gaucher disease (five females, 7 – 22 years). An equal number of age-and-gender matched children with no known predisposing factors for hearing loss were used as controls.

Her preliminary data revealed a clear deficit in the auditory brainstem encoding of speech sounds in children and young people diagnosed with Gauchers disease Type 3. The findings also raised the question of whether or not auditory training would be beneficial in these children and young people. She added: 'We are going to be conducting these recordings in a number of other children and young people with Type 3 Gaucher disease and hope that these results will provide further data to support these findings'.

Pauline Campbell will present her findings to families at the Gauchers Association's Family Conference in January 2007. The UK Gauchers Association has awarded Ms Campbell a small travel grant to support this project.

Monitoring the Skeleton

Dr Mario Maas of the Academic Medical Centre, Amsterdam, spoke about monitoring the skeleton in Gaucher disease. He explained that radiological imaging is used in patients with Gaucher disease to estimate the disease burden, to evaluate the presence of specific skeletal complications and to track response to therapy. He explained: 'My view is that MRI is currently the best technique for assessing bone marrow involvement in Gaucher disease. Conventional MRI also detects other skeletal complications in Gaucher disease, including oedema (excess fluid) resulting from acute bone infarction, infection and trauma, avascular necrosis, pathological fractures and vertebral compression.'

The Cost of Gaucher Disease

Susan Lewis, co founder of the EGA and Honorary Life President of the UK Gauchers Association, was unfortunately unable to give her presentation at the EWGGD meeting in Cambridge, on the financial and human cost of Gaucher disease. Jeremy Manuel gave her presentation:

'The cost of Gaucher disease is two-fold to patients and to society. To patients and their families with Type 1, the suffering, both physical and psychological, of having a chronic genetic condition remains a burden, even though it has now been considerably lessened by the availability of enzyme replacement therapy and medical expertise. A new diagnosis, coming to terms with the prognosis, dealing with continuing problems and the regular need for infusions is a cost to all members of the family. However for families with Type 3 and even more so Type 2, the future remains unknown and the personal costs are far greater.

'To society, and in particular the health services, the high price of enzyme replacement therapy and substrate reduction therapy is a further cost and concern. This will increase as other expensive treatments for other lysosomal diseases are licensed. Patients and their families are aware of this drain on the national purse (most patients with other diseases do not know the cost of their treatment) and this creates stress of a different type caused by worry about cutbacks and adverse public and media opinion.'

Susan Lewis

How Flexible are the Red Cells from Patients with Gaucher's Disease?

A group of scientists at St. George's Hospital in London have been working with the Gaucher's clinic at the Royal Free Hospital to investigate the flexibility and membrane properties of red blood cells in patients with Gaucher's disease. Dr Atul Mehta, Haematologist Consultant at the Royal Free Hospital, London writes:

'Red cells carry oxygen around the body and they have to negotiate small blood vessels, some of which are smaller in diameter than the red cell itself. The cells therefore have to be able to squeeze through small capillaries and release oxygen into the tissues. Red cells expend energy in maintaining their membranes in a flexible condition such that they are able to squeeze through the capillary circulation. We do not fully understand the functions of the spleen, but one important spleen function is to maintain the flexibility of the red cell membrane. The lipid composition of the membrane is also important in maintaining its flexibility. Gaucher's disease is due to a deficiency of an enzyme involved in breaking down lipids. Some of these lipids derive from red cell membranes; furthermore, the lipid composition of red cell membranes in Gaucher's patients is abnormal.

Study Details

'**Dr Bridget Bax** of St. George's Hospital London and her colleagues chose to study four subject groups; patients with Gaucher's disease with an intact spleen who were receiving enzyme replacement therapy, Gaucher's patients with an intact spleen not receiving enzyme replacement therapy, patients with Gaucher's disease who had undergone splenectomy (all of these patients were also on enzyme replacement therapy as they are typically quite markedly affected by Gaucher's disease and a control group of patients who had undergone removal of the spleen but did not suffer from Gaucher's disease). Cigarette smokers were excluded from this study because of a well known association between smoking and changes in deformability of red blood cells.

The Findings

'The capacity of red blood cells to clump together (erythrocyte aggregation) was increased in all patients who had undergone splenectomy. This feature was common to Gaucher's and non Gaucher's patients. In addition, however, the deformability of red cells was reduced in Gaucher's patients lacking spleen, but not in the non Gaucher's patients who had undergone a splenectomy. The lipid composition of the red cell membrane of Gaucher's patients is known to differ from non Gaucher's patients and these differences may well contribute to the reduced deformability of the red blood cells.

Dr Atul Mehta

'These changes might lead to significant alterations in the flow properties of the red blood cells of Gaucher's patients. It is known that patients with Gaucher's disease are more likely to develop tiny blockages in the very small capillaries. This could contribute to the bone changes and also to changes observed in the lungs.

'Enzyme replacement therapy did not appear to make any difference to the intrinsic properties of the red blood cells. Further studies are planned.

'It would be interesting to see what Miglustat (Zavesca), the oral treatment for Type 1 Gaucher's disease, has on the red cell deformability. One would predict that Miglustat would normalise the red cells since its action is to alter the synthesis of the membrane lipids.

Future Study

'An ambitious long term aim of the St. Georges' group is to use the patient's own red cells as a means of delivering enzyme replacement therapy. This technique is already being used to deliver other enzymes in patients with immune deficiency. The rationale is that the patient's own red cells would be removed from the body, incubated and injected with enzyme, and then returned to the body. The red cells would then release enzyme treatment into the patient's circulation gradually over a period of time.

Red Cell Survival Study – Ongoing Clinical Trial

'The Royal Free in collaboration with St. George's Hospital are looking to recruit Gaucher patients attending the Royal Free Gaucher Clinic to an extension arm of this study to determine the survival length of red cells.

'This would involve Gaucher patients with or without a spleen undertaking to attend St. George's Hospital to have a 20 ml blood test taken which would be radio labelled with a tracer (Chromium-51) using an established technique, and then re-infusing this blood back. This process would take up to 4 hours: patients would be free to leave after blood collection, returning later for the re-infusion step.

'A series of small blood samples (4 ml.) on days 5, 7, 10 and 14 post infusion and thereafter once weekly for 5 – 8 weeks in total would be taken. Nurses from the Royal Free would be willing to collect these blood tests at the patient's home or place of work to make this more convenient for volunteers if this would be helpful. Three 24 hour urine samples would also be required for the first 72 hours after re-infusion.

'If any Royal Free patients would like further information regarding this study then please contact the nursing team on: 0207 472 6409'.

Dr. Bax and her colleagues have recently published these findings in the European Journal of Haematology. ('Haemorheology in Gaucher disease' Bax BE, Richfield L, Bain MD, Mehta AB, Chalmers RA, Rampling MW: Eur J Haematol 2005: 75: 252-258. The St. Georges' and Royal Free teams are grateful to the patients who have agreed to give blood for these research studies.