

## **AFTERNOON DISCUSSION WITH DR PHILIP LEE (LONDON)**

Dr.Philip Lee ran a spontaneous workshop for all of the liver GSD families present which included adults and children with GSD I, III and IX.

The families were asked to mention a topic of interest and Dr. Lee gave his reply.

### **Cornstarch**

The effectiveness of different brands of cornstarch does vary, even in taste, but it has been difficult to ascertain the differences scientifically.

### **Appetite**

One parent commented their child has no appetite before breakfast because of continuous overnight. Dr. Lee answered that appetite for breakfast is 'abnormal' in virtually all patients on overnight pump feeds. The suggestion that slowing the feeding rate towards the end of the night was not advised as it would be dangerous and should not be attempted without careful medical supervision..

### **Puberty**

If the child is well treated from an early age, the onset of puberty is usually normal but can be delayed with *catch-up of growth* at puberty in GSD- III and throughout childhood in GSD-IX. Untreated GSD- I never catches up entirely.

### **Catch-up Growth**

We expect our GSD – Ia patients when diagnosed under 1 year of age to fulfil their genetic potential (ie reach an adult height normal for that family), as long as the treatment is followed properly. The ones that don't are either late diagnosed or there have been compliance problems with the treatment. With early diagnosis and treatment, we would expect all the liver GSD patients (I,III and IX) to reach 'normal' height.

### **Polycystic Ovaries**

One in four normal women have these and are still able to have babies. If they occur before puberty they can be detected by scanning. Type III females tend to be more fertile than the other liver affected types.

### **Muscle strength in Type III**

This will not be as strong as that in normal adults. We at UCL in collaboration with GOS are looking into muscle function in Type III.

Importance of taking cornstarch last thing at night, especially for adults.

If cornstarch or other forms of overnight feeding is not taken at night, the build-up of lactic acid in the blood will supply the brain with fuel when the normal supply of glucose runs out. These patients can wake up with no symptoms of hypoglycaemia. However, the long term build-up of lactic acid can cause bone, kidney and other problems.

### **Type I birth rate**

Approximately two babies a year are born with Type I in the UK.

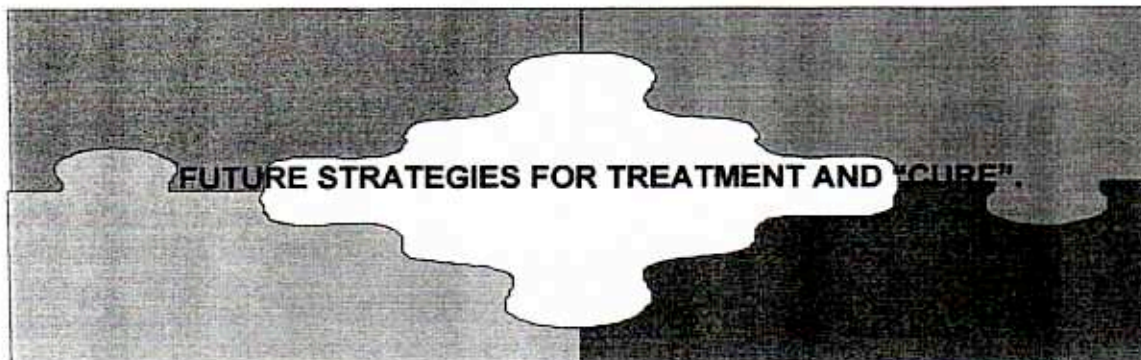
### **High Cholesterol levels in Type I patients**

Heart attacks in Type I patients are almost non-existent.

## **Hypertropic Obstruction of the heart**

This could occur in Type IIIa . The walls of the heart are normally 1 cm thick but in Type III a they can become as much as 4 cm thick which does restrict blood flow.

[See also paper by Dr. Eli HersHKovitz "The Heart in Glycogen Storage Disease type III" from the 2000 Workshop Reports]



## **GENE TRANSFER THERAPY**

Types I and III are candidates for gene therapy. A gene can be attached to a virus which targets the liver. However, it could take one or even two decades before this becomes normal practice.

*[see paper from the USA AGSD Newsletter The Ray (Winter 2001) by David A. Weinstein "Targeted Modifications of Glucos-6-Phosphatase Gene using Chimeric RNA/DNA Oligonucleotides".]*

## **COMBINED LIVER AND KIDNEY TRANSPLANT**

This is only carried out if there is kidney failure. (Only two patients in the UK have had kidney failure)

## **HEPATOCYTE TRANSPLANTATION**

Until recently only a complete liver transplant could be considered as a means of "curing" a damaged GSD liver. But the liver can regenerate itself and a small lobe of liver can be infused with liver cells prepared from mashed liver of a compatible normal liver. The advantages of such "cell transplantation" are:

- (1) It is less invasive (lower morbidity and cost);
- (2) cells from a single donor liver could be used for many recipients;
- (3) such cells can be "freeze dried" and stored.
- (4) cell suspensions may be less likely to be rejected than whole organs.

The ultimate hope is that the healthier normal liver cells will multiply and take over the diseased liver. In practice, only a small percentage of the total hepatocellular mass can be replaced with currently available methods.

*[see paper called "Liver repopulation for treatment of metabolic diseases" by M. Grompe J. Inherit. Metab. Dis., 24 (2001) p231-244.]*