CONGENITAL DISORDER OF GLYCOSYLATION CAUSED BY MANNOSE-PHOSPHATE ISOMERASE DEFICIENCY (MPI-CDG)

Clinical signs

Association and severity of signs vary depending on patients

Hyperinsulinemic hypoglycaemia

Hypoglycaemia ❶

Gastrointestinal involvement

due to protein-losing enteropathy

Abdominal pain ❶
Chronic diarrhoea ❶
Recurrent vomiting ❶
Signs of malnutrition
Growth retardation

Liver damage

Hepatomegaly ❶
relatively firm
Liver fibrosis ❷leading to:
Portal hypertension (PHT):
Splenomegaly

Complications of PHT:
- Digestive haemorrhage (oesophageal varices)
- Protein-losing enteropathy
- Intrapulmonary shunt
- Pulmonary arterial hypertension

Haematological diseases and haemostasis disorders

Arterial and/or venous thromboses (irrespective of area)

Bleeding disorders:
More rarely, frequently digestive, related to portal hypertension

Other

Hypothyroidism (rare)

No generalised neurological damage

❶ Early signs (birth to 2 years old)
❷ Late signs
Specialist medical opinion and reference laboratory

Specialist workup

Additional tests

Hypoalbuminaemia
Intestinal villous atrophy
+/- Steatorrhoea

↗ Moderate
AST, ALT and GGT ❶
High liver elastometry ❷
Liver fibrosis, monitor liver nodules
Screen for complications of portal hypertension

↘ Antithrombin III +FXI ❶
↘ Proteins C and S

Protein glycosylation defect type MPI-CDG (=CDG Ib)?

Specialist workup in collaboration with Centre of Excellence
at the same time as looking for other potential differential diagnoses

Plasma transferrin glycosylation study on serum (dry tube)

If abnormal[1]: Confirmatory genetic study +/- measure enzyme activity

Specialist advice from a Centre of Excellence:

G2M network: Rare Disease Centre of Reference / Competence : https://www.filiere-g2m.fr/annuaire/
+/- other network(s) depending on clinical symptoms: MHEMO / Firendo / Filfoie

Initial assessment and specialist treatment coordinated by the Centre of Excellence, specific treatment to be rapidly implemented

Genetic counselling, family screening in a specialist centre

For more information:
PNDS: French National Authority for Health -- MPI-CDG carbohydrate-deficient glycoprotein syndrome caused by phosphomannose isomerase deficiency (has-sante.fr)

Emergency protocols for each symptom and/or disease; https://www.filiere-g2m.fr/urgences

[1] Diagnostic approach to be discussed with specialist laboratories. An abnormal transferrin glycosylation study result may also be caused by another type of CDG syndrome or another pathology, such as galactosemia, fructose intolerance, toxic liver disease (alcoholism, etc.).

Maladies rares Héréditaires du Métabolisme
Filière nationale de santé
FIRENDO MHEMO
FILFOIE