

CDG DIAGNOSIS

A simplified guide for different stakeholders

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INTRODUCTION

Congenital disorders of glycosylation (CDG) are inherited metabolic diseases that cause defects in glycosylation. CDG diagnosis is most of the times challenging due to the high and growing number of CDGs (~140) but

also due to heterogeneous phenotypes and variable severity.^{1,2} The classical screening test is serum transferrin isoelectrofocusing. However, it cannot be used for every CDG and can generate false negatives.

AIM

To address the challenges of CDG diagnosis by representing an overview of the different approaches that help CDG diagnosis.

METHODOLOGY

Literature review to identify the CDGs' clinical and biochemical hallmarks as well as the biochemical and genetic testing available.

RESULTS

01

Clinical manifestations reported in CDG per organ/system²

02

Biochemical and laboratory findings reported in CDG per organ/system²

03

Clinical features suggestive of distinct CDG²

04

Diagnostic decision tree in face of a patient with a suspicion of CDG

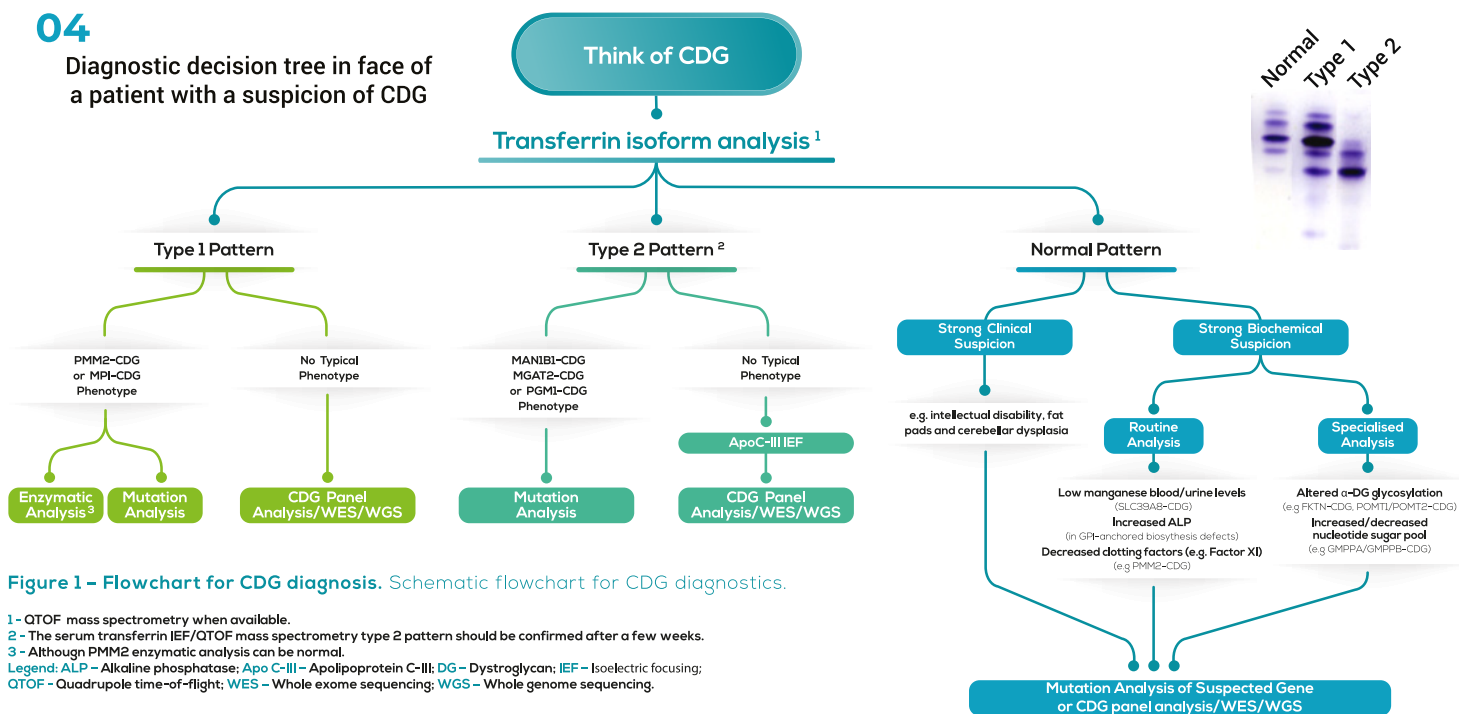


Figure 1 – Flowchart for CDG diagnosis. Schematic flowchart for CDG diagnostics.

1- QTOF mass spectrometry when available.

2- The serum transferrin IEF/QTOF mass spectrometry type 2 pattern should be confirmed after a few weeks.

3- Although PMM2 enzymatic analysis can be normal.

Legend: ALP – Alkaline phosphatase; Apo C-III – Apolipoprotein C-III; DG – Dystroglycan; IEF – Isoelectric focusing; QTOF – Quadrupole time-of-flight; WES – Whole exome sequencing; WGS – Whole genome sequencing.

CONCLUSIONS

This work provides:

- Guidance for health care providers on how to diagnose CDG.
- A list of clinical and biochemical hallmarks per CDG which can help direct the suspicion of a specific CDG diagnosis.
- Raises awareness for CDG.

REFERENCES

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2. Francisco R et al, The Challenge of CDG Diagnosis, Mol Genet Metab, 2019, 126 (1), 1-5

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