WHEN TO CONSIDER LIPIN-1 DEFICIENCY (= PHOSPHATIDYL PHOSPHATASE-1 DEFICIENCY)

MOST OFTEN REVEALED IN INFANTS,
THERE ARE SOME CASES WHERE IT IS REVEALED IN ADULTS WITH ACUTE EPISODES OF RHABDOMYOLOSIS IN PATIENTS WHO ARE GENERALLY ASYMPTOMATIC BETWEEN ACUTE EPISODES

Maladies rares Héréditaires du Métabolisme
Filière nationale de santé

Clinical signs

Recurrent acute impairment with risk to life

Aggravating factors (inconstant): infections, fever, fasting, intensive physical exercise

Rhabdomyolysis with very high CPK, often >50 000 IU/l

Severe acute rhabdomyolysis:

Myalgia, hypotonia, muscle weakness with refusal to walk, up to complete functional incapacity, diminished reflexes, lethargy, exhaustion, altered consciousness, myoglobinuria (dark red port-wine-coloured urine)

Complications of rhabdomyolysis:

Renal failure, anuria/oliguria

State of shock, hypoperfusion, hyperosmolar coma, Heart rhythm disorders due to hyperkalaemia and cardiac impairment

Additional tests

Blood workup:
Very high CPK[1], >10 000 IU/l, often >50 000 IU/l, elevated transaminases (AST, ALT)

Sometimes: **hyperkalaemia, renal failure[2]**

Cardiac impairment

(potential impairment specific to lipin-1 deficiency, an addition to risk of impairment associated with rhabdomyolysis)

Heart rhythm disorders
(sometimes not correlated to hyperkalaemia)
risk of cardiac arrest

Myocardial damage, **heart failure**

Additional tests

ECG:
signs of hyperkalaemia, cardiac rhythm disorders:
ventricular fibrillation or ventricular tachycardia

Inconstant chronic impairment

Muscle damage

Chronic muscle pain, cramps or **fatigue upon exertion**

Cardiac impairment

Rarely found
Normal ECG between crises

Potential moderate change to heart function, cardiomyopathy

Other

+/- Liver steatosis

Additional tests

Blood workup:
Normal or moderately high CPK between acute episodes

Specialist workup

Lipin-1 deficiency?

Specialist workup in collaboration with a Centre of Excellence
Eliminate potential differential diagnoses[3]

There are no specific biomarkers that can be measured routinely

Genetic confirmation (abnormal *LPIN1* gene)

Seek specialist advice quickly **from a Centre of Excellence: Rare Disease Centre of Reference / Competence:** https://www.filiere-g2m.fr/annuaire/

Start the parallel treatment urgently

Refer to the **emergency protocols for each symptom and/or disease: https://www.filiere-g2m.fr/urgences**

Specialist treatment coordinated by a Centre of Excellence

Genetic counselling, family screening in a specialist centre

Specialist medical opinion and reference laboratory

[1]CPK elevation may be delayed with onset following muscular pain Repeat test if diagnosis is suspected.
[2]The creatinine figures do not reflect the severity of the kidney disease, because it is released by muscle necrosis; urea figures are more reliable.
[3]Other causes of rhabdomyolysis (see emergency protocol for rhabdomyolysis https://www.filiere-g2m.fr/urgences) including fatty acid oxidation disorders in particular - take samples in the acute phase.