PRIMARY HYPEROXALURIA TYPE 1 (PH1)

Rapid decline in kidney function can occur in PH1[1]

HYPOTHETICAL PATIENT PROFILE:

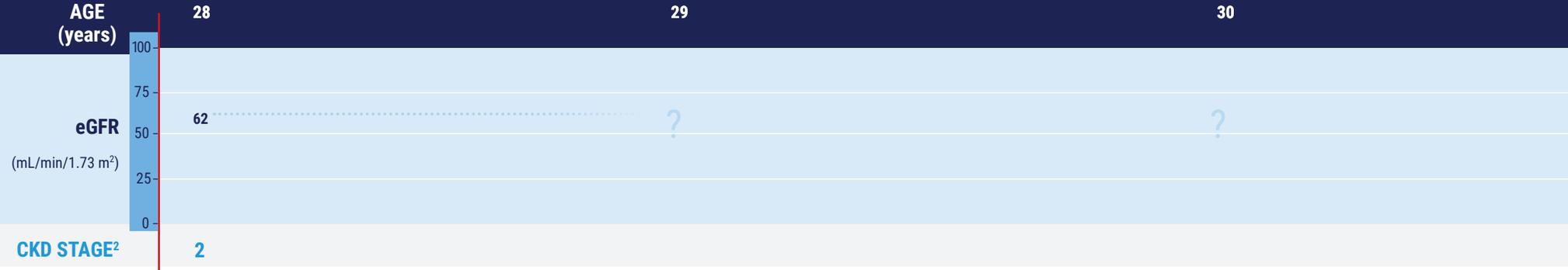
An adult patient with PH1 experiences rapid decline in kidney function without consistent management and monitoring.

BEHIND THE STONE

This case study is hypothetical and is not representative of all patients with PH1.

PATIENT TIMELINE:

Hypothetical patient profile: an adult patient with PH1 experiences rapid decline in kidney function without consistent management and monitoring.



PATIENT HISTORY:

KIDNEY STONE EVENTS

AGE 24: REFERRAL TO UROLOGY
Patient passed stone fragments, and the episode was managed by a urologist nonsurgically[3-5]

AGE 26: ED VISIT
Patient passed stone fragments and was again managed by a urologist nonsurgically[3-5]

AGE 28: ED VISIT
Episode of hematuria accompanied by flank pain associated with stone formation that was passed without complications. Stone fragment identified by a urologist as calcium oxalate monohydrate[1,6]

The AUA recommends considering genetic testing in any adult without bowel dysfunction with urinary oxalate excretion >75 mg/day (0.83 mmol/1.73 m²/day).[7]

AGXT, alanine glyoxylate aminotransferase;
AUA, American Urological Association;
CKD, chronic kidney disease;
ED, emergency department;
eGFR, estimated glomerular filtration rate.

Normal urinary oxalate level (all ages)[8]: <0.50 mmol (<45 mg)/24h/1.73 m²

Normal plasma oxalate levels[12]: 1-5 µmol/L

REFERRAL TO NEPHROLOGIST UPON RECURRENT STONE EVENT[9]

PH1 DIAGNOSIS
CKD stage 2[2]

IMAGING FINDINGS:
Increased medullary echogenicity suggestive of nephrocalcinosis on ultrasound[8,10]

24-HOUR URINE FINDINGS:
Oxalate[1]: 0.97 mmol (85.3 mg)/24h/1.73 m²

GENETIC TEST FINDINGS:
Genetic test identified homozygous *AGXT* mutation, confirming PH1[11]*
*It is recommended that siblings be screened.[4,8]

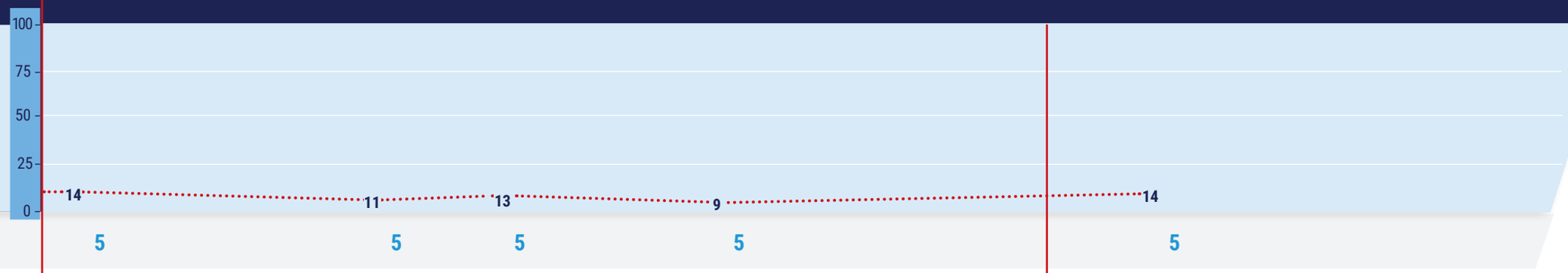
MEDICAL MANAGEMENT PLAN ESTABLISHED:
Water (6 L/day), potassium citrate (12 g/day), pyridoxine (B6) (410 mg/day)[1,12†]
†For an adult patient who is 6 feet tall and weighs 180 pounds.

KIDNEY STATUS UNKNOWN

MANAGEMENT CHALLENGES:
- Patient misses scheduled office visits
- eGFR and urinary oxalate levels are not monitored

PATIENT TIMELINE:

Hypothetical patient profile: an adult patient with PH1 experiences rapid decline in kidney function without consistent management and monitoring.



eGFR DECLINES DRAMATICALLY DUE TO DEHYDRATION[13-15]

PATIENT DEVELOPS COMPLICATED UTI
Presents to ED with fever and chills[16]

DIALYSIS PLANNING:
- Plasma oxalate is measured due to concern of systemic oxalosis[1]
- Predialysis plasma oxalate: 130 µmol/L[17]
- Goal: <30 µmol/L[1]

PATIENT IS LISTED FOR COMBINED LIVER/KIDNEY TRANSPLANT
Since patient is in end-stage kidney disease (ESKD), combined liver/kidney transplant is required[1]

PLASMA OXALATE MONITORED CLOSELY[8]

INTENSIVE DIALYSIS REGIMEN:
- Patient undergoes hemodialysis 6 times per week[17]
- Each session of hemodialysis is 4 hours long[17]

MONITORING REGIMEN:
Routine surveillance for complications of systemic oxalosis and ESKD[8]:
- Long-bone radiographs
- Echocardiogram
- Thyroid function
- Electrocardiogram
- Hemoglobin

EFFECTS ON QUALITY OF LIFE:
- Work absences
- Emotional stress
- Financial burden
- Intensity of required medical care
- Missed family gatherings
- Inability to plan for future

PLASMA OXALATE NOT CONTROLLED WITH DIALYSIS

SIGNS OF SYSTEMIC OXALOSIS
Patient reports painful skin nodules and bone pain[1]

PLASMA OXALATE LEVEL:
Minimum plasma oxalate remains around 140 µmol/L despite intensive dialysis[18]

PATIENT IS STILL AWAITING TRANSPLANT A YEAR LATER[19]

CKD, chronic kidney disease;
ED, emergency department;
eGFR, estimated glomerular filtration rate.

Normal urinary oxalate level (all ages)[8]: <0.50 mmol (<45 mg)/24h/1.73 m²

Normal plasma oxalate levels[12]: 1-5 µmol/L

TAKEAWAYS:

Patients with PH1 may require continuous management, regardless of their age or symptomatology. Given the progressive nature of the disease, it is important that patients understand the benefit of continued management.[4,8]

Monitoring for decline in kidney function may be needed. In some instances, kidney function can decline after a single incident of dehydration due to acute illness or intense physical activity. This can occur even in patients with previously stable kidney function.[4,8,13,15,20]

Active management of PH1 may help slow the progression to ESKD. However, some patients may eventually progress to ESKD when a combined liver/kidney transplant is their only option. This procedure carries significant long-term morbidity and mortality risks.[1,4,8,11]

PH1 is a very heterogeneous disease. Even siblings with the same genotype experience distinct and variable clinical manifestations.[21]

Consider genetic testing for your patients

when you suspect PH1[9,11]

ONE OPTION FOR TESTING IS THE ALNYLAM ACT® PROGRAM:
Third-party genetic testing and counseling programs offered at no charge to patients.

AlnylamAct®

The Alnylam Act® program was created to provide access to genetic testing and counseling to patients as a way to help people make more informed decisions about their health.

- While Alnylam provides financial support for this program, tests and services are performed by independent third parties
- Healthcare professionals must confirm that patients meet certain criteria to use the program
- Alnylam receives de-identified patient data from this program, but at no time does Alnylam receive patient identifiable information. Alnylam may use healthcare professional contact information for research purposes
- Both genetic testing and genetic counseling are available in the US and Canada
- Healthcare professionals or patients who use this program have no obligation to recommend, purchase, order, prescribe, promote, administer, use, or support any Alnylam product
- No patients, healthcare professionals, or payers, including government payers, are billed for this program

FOR MORE INFORMATION, VISIT ALNYLAMACT.COM AND ABOUTPH1.COM >

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