

Acute intermittent porphyria mimicking Guillain–Barré syndrome in a HIV patient

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Abstract

The diagnosis of porphyria remains challenging as the condition is characterized by a myriad of clinical and biochemical features. More importantly, an acute attack is associated with increased morbidity and mortality. Misdiagnosis of porphyria poses an ongoing problem. We describe a 42-year-old Black female South African patient who presented to Steve Biko Academic Hospital in Pretoria, on the 16 July 2014 with a clinical problem of acute paraparesis. On admission, she had absent reflexes, bilateral cranial nerve VII fallout, patchy sensory fallout and faecal incontinence. When her magnetic resonance imaging of the brain and cervical spine showed no signs suggestive of acute disseminated encephalomyelitis, a diagnosis of Guillain–Barré syndrome was made. On the 21 July her condition deteriorated to the point where she needed ventilator support. She also developed a pulmonary embolism and was treated. Due to deterioration of her condition, urine was sent for porphobilinogen test. This was clearly positive. The diagnosis of acute intermittent porphyria was eventually made. This case highlights the complexity related to the diagnosis of porphyria. It confirms that the diagnosis is often incidental and in a vast majority of patients, neurological complications preceded the final biochemical diagnosis.

1. Introduction

Acute intermittent porphyria (AIP) is not only the most common but the most severe form of inherited hepatic porphyria [1]. Porphyrins are classified as hepatic or erythroid and clinically as neurovisceral, cutaneous or mixed; based on the presenting symptoms and signs. The porphyrias are diseases due to deficiencies of enzymes of the heme biosynthetic pathway [1,2]. There are 5 hepatic porphyrias, with 4 typically presenting with acute attacks of neurologic manifestations, of which AIP is most prevalent [3,4].

2. Case report

We describe a 42-year-old female who presented to our institution on the 16th July 2014 with a four-day history of acute onset of weakness of the legs and arms with inability to walk and a week-long episode of constipation. Her background medical history revealed previous multidrug resistant tuberculosis 5 years ago. In June 2014 her human immunodeficiency virus test was positive with CD₄ of $79 \times 10^6 \text{ L}^{-1}$ and the antiretroviral agent, Tribuss and Bactrim was initiated. She was admitted to her local hospital 2 months previously with a “nervous breakdown”. On admission, her clinical examination revealed tachycardia and tachypnea and was found to have a bilateral lower motor neuron facial palsy, areflexia with weakness of grade 2/5 in all limbs with neck stiffness. In addition, there was a sensory level up to T4, absence of proprioceptive sensation in all limbs and loss of sacral sensation.

Her progress in the ward was eventful as she suffered a period of mental confusion; her lung function deteriorated to the extent that she warranted intubation and had to be transferred to the intensive care unit on the 22 July 2014. Nerve conduction studies of the peripheral nerves revealed diminished compound muscle action potential (CMAP) amplitudes in the peripheral muscles of all 4 limbs. The cerebrospinal fluid protein was elevated to 1.25 g/L (0.15–0.45). Further special investigations showed a positive D-dimer value and a ventilation-perfusion scan confirming a pulmonary embolism. She was treated with polygam and clexane/enoxaparin. Other abnormal laboratory test included a decrease in s-Na to 128 mmol/L, urinary Na of 83 mmol/L, which responded to fluid restriction. The following tests were either normal or negative: hepatitis studies for A IgM, B surface antigens, C antibodies, rheumatoid factor, anti-nuclear antibodies, anti-cardiolipin antibody, rapid plasma reagin, treponemal antibodies, and cytomegalovirus. In view of the unresponsive neuropathy, syndrome of inappropriate ADH (anti-diuretic hormone) secretion, previous psychiatric symptoms and constipation, screening for porphyria was done. Results related to the porphyria test are shown in Table 1. Last dose of Bactrim was administered on the 20 July 2014. Increased excretion of urinary 5-aminolevulinate (ALA) and porphobilinogen (PBG) and plasma porphyrin fluoroscanning demonstrated an emission peak at a wavelength of 619 nm which is suggestive of AIP. Genetic studies were not done. The decision was made to treat her with hemin therapy. However, in South Africa this is not readily available in our government sector and it had to be motivated and approved by the required authorities. There was an improvement in her neurological condition whereby she regained strength of her upper limbs and was able to sit, not walk when she was transferred to her local hospital on the 23 September 2014. The patient unfortunately passed away on the 01/01/2015 before receiving hemin. What can be confirmed is that she re-admitted to her local hospital in November 2014 with a problem of hyponatremia, where her s-Na measured 117 and 121 mmol/L. No further information was forthcoming.

Table 1. Porphyrin analysis.

Specimen	18 July	01 Aug urine	01 Aug stool	7 Aug	15 Aug	22 Aug
Plasma porphyrin screening				+		
ALA						159.0
PBG		378.4			86.0	312.2
Urine porphobilinogen screen	+					
Porphyrins	6562	2126.9	374			
Porphyrin:creat ratio	500.9	386.7				
7-COOH	Urine: trace		Trace			67.9
8-COOH (uroporphyrin)	Urine: ++		Trace			262.2
2-COOH			+			
5-COOH						60.3
4-COOH (coproporphyrin)			+			726.4

Porphyrins, nmol/L; porphyrin:creat ratio, nmol/mmol creat (0.0–35.0); PBG, $\mu\text{mol}/10$ mmol creat (<16); PBG:creat ratio, $\mu\text{mol}/\text{mmol}$ creat (0.0–1.5); faecal porphyrin, nmol/g dry weight (0–200); ALA, $\mu\text{mol}/10$ mmol creat (<45); 8-COOH (<20); 7-COOH (<1.5); 4-COOH (<240); normal references ranges given in parenthesis.

3. Discussion

Acute intermittent porphyria (AIP) is not only the most common but the most severe form of inherited hepatic porphyria [1]. Porphyrins are classified as hepatic or erythroid and clinically as neurovisceral, cutaneous or mixed; based on the presenting symptoms and signs. The porphyrias are diseases due to deficiencies of enzymes of the heme biosynthetic pathway [1,2]. There are 5 hepatic porphyrias, with 4 typically presenting with acute attacks of neurologic manifestations, of which AIP is most prevalent [3,4].

The symptomatic phase of acute hepatic porphyrias is characterized by overproduction of neurotoxic porphyrin precursors and porphyrins, which accumulate in tissues and excess thereof is excreted in urine and faeces [1]. Clinical manifestations include gastrointestinal, neurologic and cardiovascular symptoms and signs. The peripheral neuropathy tends to be progressive and involves motor and sensory nerves. The muscular weakness can progress to quadriparesis and respiratory paralysis with arrest, which resemble Guillain-Barré syndrome [5].

4. Conclusion

This case highlights concerns with misdiagnosis, delayed diagnosis and inappropriate therapy related to acute porphyrias. A high clinical suspicion of index is crucial when confronted with neuropsychiatric and abdominal signs. Patient education and knowledge on exacerbating factors will prevent future acute attacks. The first molecularly confirmed AIP in a black South African was published in April 2014 [6]. We describe this unusual presentation in a black female patient.

Conflict of interest

None declared.

Financial disclosure

None declared.

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