

A Case Report of Panhypopituitarism with Refractory Shock

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Abstract:

Background: The panhypopituitarism is a rare endocrine system disease; the clinical presentation of a panhypopituitarism patient can vary from asymptomatic or subclinical cases to life-threatening myxedema coma.

Case report: Our patient is 55 years old woman who presented to emergency department with chief complaints of acute watery diarrhea with AKI complicated by refractory shock. After necessary workup, panhypopituitarism was diagnosed.

Discussion: There are different diagnoses for shock. Inpatients with vague complaints such as refractory shock, we should take their history carefully and perform clinical examinations with all investigations to reach a definitive diagnosis.

Key words: panhypopituitarism; shock; endocrine system disease

Introduction

Refractory shock is a potentially fatal manifestation of cardiovascular failure with inadequate response to vasopressors characterized by poor tissue perfusion, hypotension, and organ failure [1]. Refractory shock in panhypopituitarism arises from severe hormonal deficiencies, particularly adrenocorticotrophic hormone (ACTH) deficiency, leading to adrenal insufficiency and life-threatening hypotension [2]. Management of refractory shock involves treating the cause and restoring organ perfusion with fluid resuscitation and vasopressors, and hormone replacement therapy.

Case report

The patient was a 55 years old woman who complained of acute watery diarrhea and dehydration since 3 days ago. In the emergency department, the patient was hypotensive, with tachycardia. Signs of dehydration such as sunken eyes, delayed capillary refill time, and delayed skin turgor were

observed in the general appearance. The patient was pale and there's mild pre-orbital edema. At the lower extremities non-pitting edema was evident in both legs. Other examination findings were within normal limits. Primary lab test results were as the table. Then the patient was diagnosed as acute watery diarrhea follows in the due cholera complicated by AKI. Patient admitted to ICU and received adequate IV fluid and still hypotensive with no improvement and developed volume overload, then she was given dopamine with noradrenaline. Patient didn't respond to vasopressors and still hypotensive with confusion and AKI. Patient's TSH and free T4 were requested, and based in the results patient complains of hypothyroidism secondary to hypopituitarism. Finally, we prescribed her hydrocortisone 200 mg IV bolus followed by 100 mg every 8 hours and levothyroxine 0.1 mg daily. In subsequent follow-up the patient's symptoms resolved and her life status had improved.

Element	Result	Normal range
WBC	8.1 *103/mm3	mm3/103 *(4-10)
Hb	12.7 g/dl	12-16 g/dl
RBS	65mg /dl	80-140 mg/dl
Cr	1.8 mg/dl	0.7-1.4 mg /dl
Potassium	3.2mmol/L	3.5-5.5 mmol/L
Calcium	7.6 mg/dl	8-11.5 mg/dl
Free T4	0.236 ng/dl	9-23 ng/dl
TSH	0.714 pmol/lit	0.35-5.3 pmol/lit

Discussion

In this case, we report a patient who was presented to the emergency department with complaints of acute watery diarrhea, dehydration, AKI, refractory shock, eventually panhypopituitarism was diagnosed. Patient did not respond to IV fluid therapy and vasopressors and still hypotensive. Septic shock first excluded. Thyroid function tests requested and results were low free T4 and TSH serum levels are suggested to secondary thyroid insufficiency in this patient. *The level of serum cortisol of the patient is done at 8 am, since the serum level is lower than 3 µg/dl, ACTH stimulation test is not needed. On the other hand, there is no evidence in the physical examination of patient for primary adrenal insufficiency (such as skin and mucosal pigmentation) and secondary adrenal insufficiency arises and at this situation we did not usually check the ACTH hormone levels. MRI was not done to patient to evaluate the reasons of pituitary insufficiency that needs surgical intervention as the cause of pituitary apoplexy here is severe watery diarrhea that complicated by dehydration and AKI.

Panhypopituitarism is a rare disease with a high mortality. It is characterized by complete or partial deficiency of hormones secreted by the pituitary gland [3,4]. Its Prevalence is 45 per 100,000 populations, and its incidence is 4 per 100,000 populations [5]. There is a variety of causes for Panhypopituitarism, such as cranial surgery, radiotherapy and tumors, hereditary causes, infiltrative disease, infectious diseases and head trauma. Due to the underlying pathology, clinical symptoms are related to severity and speed of onset [3]. This condition may be created in high-energy head trauma. Any symptoms associated with hormonal disorders after head trauma requires the studies of pituitary function [6,7]

The clinical presentation of the panhypopituitarism patient can vary from asymptomatic or subclinical cases to life-threatening myxedema coma. Patient's symptoms are different, related to which hormone is involved (including hypothyroidism, hypoadrenalism, hypogonadism, growth hormone disorder and hypoprolactinemia) [3,4]. Some patients may be referred with hyponatremia due to adrenal glands dysfunction, in spite of the necessary studies for the evaluation of patients with hyponatremia, checking the serum cortisol level is needed to rule out hypoadrenalism

[8,9]. Signs and symptoms of the disease may persist for several years without diagnosis [5]. Suspicion of this disease, clinical examination and biochemical tests may be helpful in early diagnosis of the disease [3,4]. In these patients, due to the impairment of cortisol and thyroid hormones, QT prolongation and heart rhythm disorders may be existed [10,11]

Treatment of panhypopituitarism includes therapies of underlying cause with hormone replacement. The main goal of Hormone Replacement Therapy (HRT) is to achieve to normal levels of circulating hormones to restore the body's natural physiology and relief of symptoms with minimal side effects.

Mineralocorticoid replacement is not necessary in most cases because the renin- angiotensin system and potassium are the key regulators for aldosterone secretion [3]

Considering the extent of clinical signs of panhypopituitarism, in confronting with vague complaints with resistant to treatments, we must keep in mind hormonal disorders such as panhypopituitarism.

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