World Journal of Pharmaceutical and Life Sciences
WJPLS
www.wjpls.org
SJIF Impact Factor: 6.129

CENTRAL DIABETES INSIPIDUS AS POTENTIAL ENDOCRINE MANIFESTATION OF COVID19 INFECTION

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Article Received on 08/12/2021 **Article Revised on 28/12/2021** **Article Accepted on 18/01/2022**

ABSTRACT

SARS-CoV-2 infection, responsible for the coronavirus disease-2019(COVID19) has rapidly spread, causing global pandemic. COVID19 being just a respiratory pathogen but has demonstrated that it is capable of involving multiple organ systems .here we present a case who developed diabetes insipidus following COVID19 infection.

KEYWORD: Central Diabetes Insipidus, Covid 19, Case Report.

INTRODUCTION

Central diabetes insupidus (CDI) is a complex disorder in which large volumes of dilute urine are excreted due to to arginine-vasopressin deficiency.[1,2] and it is caused by a variety of conditions (genetic, congenital, inflammatory, neoplasia, traumatic).

Coronavirus disease (COVID19) has become a leading global pandemic health calamity affecting millions around the world. Although initially thought COVID19 as primary a disease of the respiratory system but it has extra pulmonary manifestations.[1,3] Due to daysregulated immune response, it can affect other organ system in our body including cardiovascular, endocrine, renal, gastrointestinal neurological systems causing numerous complications.[5,6] We present a two years old girl with COVID19 positive test who later on her disease course developed central diabetes ininsipidus.

CASE PRESENTION

Two years old female baby who was brought to nephrology clinic that her parents concerned about excessive urination since ten days ago she suffered not only from polyuria but also polydepsia .she has not history of diabetes mellitus but she was diagnosed with covid19 infection with nasopharyngeal reverse transcription polymerase reaction (RT-PCR) at outpatient clinic 20 days ago with chills, malaise, fatigue, fever (38 centigrade) and decreased appetite.10 days after the diagnose she be came symptoms free.

On admission, her temperature was 37 °c ,a pulse of 100 beats per minute, blood pressure 85/50 ,respiratory rate of 25 breats per minute with oxygen saturation 0f 94% on room air , she had sunken eyes, normal skin turgor, she drank plenty water,but 10 days after treatment of respiratory symptoms she was also found to have increased urine output 0f more than 13ml/kg/h, further investigation revealed sodium 154meq/l and potassium 3.5meq/l, urine osmolarity of 300 mosm/kg urine sodium 45meq/l level of cortisol and ACTH was normal, fasting blood sugar level was 82mg /dl, she was started on one puff Ddavp nasal spray per day then urine output decreased up to 8ml/kg/h ,so I decided to increase the one puff every 12 hours.her urine output decreased up to 3.2ml/kg/ h and urine osmolarity increased to 850 msom/kg.

She had no history of head trauma, vision problems, headaches, ophthalmology consultant was normal. Magnetic resonance imaging (MRI) of the pituitary gland was negative for any pituitary mass.hemorrhage ,or malignancy. She continued to receive ddavp nasal spray every 12 hours. The patient discharged d after 72 hours an appointment was set for a week after discharge from hospital, her weight increased about 900grher urine output 3ml/kg/h fortunately she was good.

DISCUSSION

The causative agent of COVID19 has demonstrated that it is capable of involving multiple organ systems rather than being just a respiratory pathogen.[7] Endocrine disorders was noticed quite early when it was found that patients with disease and uncontrolled hyperglycemia were at an increased risk of severe disease as well as mortality from covid19 however, recent studies have also demonstrated it to be precipitating factor for the

emergency of endocrine disorders in previously healthy patients including irregularities of thyroid function, adrenal dysfunction, hypothalamic-pituitary dysfuncation.[8]

Adrenal dysfunction in covid19 has now been reported in several studies. The receptors for the SARS-COV-2, angiotensin-converting enzyme 2(AEC2), and transmembrane serine proteases 2(TMPRSS2) have been localized in adrenal s providing a pathway for the virus to affect the gland. Mechanisms suggested include the production of certain amino acids by SARS mimicking ACTH which resulting in adrenal insufficiency.[9,10] Furthermore, the release of inflammatory markers such as interleukin-1,interleukin -6 ,and tumor necrosis factor alfa is thought to decreased ACTH production by pituitary gland.[11] So we considered the high volume of urine and polydipsia in patient could be due to covid19, one can assume that covid19 directly or via immune-mediated hypophsitis may lead to vasopressin deficiency. Here we present a unique case of 2 years old female who developed diabetes insipidus following COVID19 infection.

CONCLUSION

We recommend Physician should have clinical suspicion for endocrine disorders in any patient with confirmed COVID19 infection who presents electrolytes derangement nausea ,vomiting or polyuria, polydepsia, diabetes insipidus or diabetes mellitus should be ruled out.,in such case prompt diagnosis and treatment can result in decreased morbidity and mortality among such patients.more studies and long term follow up of recovered COVID19 patients is recommended to recognize endocrine post COVID19 complications, clinical course and recovery.

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