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The Subtlety of Chronic Kidney Disease

- Need for health care providers to be at alert.

Ojeh-Oziegbe Odigie[1], Okwuonu Chimezie G[2]*, Osayande Victor[1]

1.Nephrology Unit, University of Benin Teaching Hospital, Benin City, Nigeria

2.Nephrology Unit, Federal Medical Centre Umuahia Abia State Nigeria

*Correspondence- Dr Okwuonu Chimezie G

Nephrology Unit, Department of Internal Medicine

Federal Medical Center, Umuahia, Abia state

Email; getchimezie@yahoo.com

ABSTRACT

Chronic kidney disease is usually silent at its earlier stages. Its complications affect virtually every organ and system in the body. Clinical features may be cryptic or atypical in nature and as such, may elude the health care worker. Findings from recent studies have shown that the knowledge of chronic kidney disease is inadequate among non-nephrologists. We therefore report a patient with previously undiagnosed chronic kidney disease who developed irrational behaviour and was taken to a nearby psychiatric hospital by relatives. There at the psychiatric hospital, an urgent renal function test was done and revealed deranged values. He was later referred to our institution where he was found to have a chronic kidney disease (CKD), the irrational behaviour been part of the manifestation of the uraemic syndrome. Health workers should equip themselves with knowledge of this disease in order to facilitate early detection and optimal care.

Key words; Chronic kidney disease, healthcare workers, alert

INTRODUCTION

The disease state associated with advanced renal impairment involve more than renal excretory failure. A host of metabolic and endocrine functions normally performed by the kidneys is also impaired or suppressed, and this results in myriad of complications. While health care providers are aware of the florid symptoms and signs of the uremic patients, some subtle manifestations usually slip beneath their watchful eyes until presentation at later stages, sometimes in atypical manners. We report this case so that health care providers can be aware of the cryptic and atypical ways that CKD can present. Studies have shown that the knowledge of chronic kidney disease is inadequate among non-nephrologists in United States of America,[1] Taiwan[2] and Nigeria.[3] Meanwhile most patients with CKD are likely to be seen by non-nephrologists first before their eventual referral to the nephrologist. Therefore early identification and initial management are crucial for optimal outcomes.

Index Case

The patient was a 48-year old businessman who developed sudden onset of irrational talk and behaviour. His relatives immediately took him to a nearby psychiatric hospital where an urgent urea and creatinine was done and revealed deranged values. He was thereafter referred to our institution. On arrival at the accident and emergency room, history showed that there was no prior history of headache, fever, trauma to the head or family history of mental disorder. He was not known to be a previous or current smoker, no history of ingestion of alcohol or intake of substances of abuse. This was the first episode of such an occurrence. He was not a known hypertensive or diabetic and no family history of kidney disease. Prior to this event (one week earlier), he was noted to be responding slowly to questions posed to him. Positive findings on physical examination were restlessness, locomotor brachialis, elevated blood pressure of

160/100mmHg, displaced heaving apex with a fouth heart sound. Initial laboratory investigations were as illustrated in table 1

Table 1; Initial laboratory evaluations in the accident and emergency room

Parameter	Result	Reference range
Urea (mg/dL)	251	15-40
Creatinine (mg/dL)	7.4	0.6-1.3
Bicarbonate (mmol/L)	13	20-30
Potassium (mmol/L)	5.8	3.5-5.5
Sodium(mmol/L)	131	135-145
Chloride(mmol/L)	101	95-105
Haemoglobin (g/dl)	9	14-17

Result of urgent urinalysis showed Protein-++, specific gravity= 1.010, other findings were normal. A renal ultrasound scan done on same day showed bilaterally shrunken kidneys (left kidney = 7.5cm×3.9cm, right kidney = 7.3cm× 4.0cm). Both shows increased parenchymal echogenicity and poor corticomedullary differentiation. The conclusion was that of chronic renal parenchymal disease.

Based on history, laboratory and radiological features above a diagnosis of chronic kidney disease from most likely hypertension complicated by uraemic encephalopathy; was made.

The patient received a session of hemodialysis thereafter. The irrational speech and behaviour resolved and he was admitted and managed subsequently for chronic kidney disease.

DISCUSSION

Chronic kidney disease (CKD) is an ailment of fatality. Accordingly, many people are meeting their doom around the world by the affliction of this disease. It is miserably factual that sometimes we barely perceive any symptom till the end stage approaches. Consequently, most of the time, it seems difficult to prevent the renal failure.[4]

Due to the asymptomatic nature of renal disease, kidney damage frequently remains undetected until late in the course, at which stage therapeutic interventions aimed at retarding its progression are often ineffective.[5] It is usually characterized by a relentless progression to end stage renal disease and the development of uremia.[6]

Uraemia leads to disturbances in the function of virtually every organ system including the neurological system.[7] Some of the subtle manifestations of uraemia in the neurological system include headache, impaired mentation, sleep disorders and malaise. As renal function progressively worsens, some presentations become manifest such as , restless leg syndrome, peripheral neuropathy, asterixis, myoclonus, irrational behaviour, seizures, coma and dialysis disequilibrium.[8]

The index patient was not known to have a kidney disease. He had no previous record of abnormal urinalysis result and has not been checking his blood sugar and blood pressure regularly. He was only noted earlier (one week before presentation to hospital) to have features suggestive of impaired mentation (responded slowly to questions posed to him directly). This is a subtle manifestation of uraemia and was not really taken seriously until he developed florid feature of uraemia, notably irrational behaviour.

The uraemic syndrome and the disease state associated with advanced renal impairment involve more than renal excretory failure. A host of metabolic and endocrine functions normally

performed by the kidneys is also impaired or suppressed, and this results in anemia, malnutrition, and abnormal metabolism of carbohydrates, fats, and proteins.[9] Furthermore, plasma levels of many hormones, including parathyroid hormone, fibroblast growth factor-23, insulin, glucagon, steroid hormones including vitamin D and sex hormones, and prolactin, change with renal failure as a result of urinary retention, decreased degradation, or abnormal regulation. Finally, progressive renal impairment is associated with worsening systemic inflammation. The inflammation associated with renal impairment is important in the malnutrition-inflammation-atherosclerosis/calcification syndrome, which contributes in turn to the acceleration of vascular disease and comorbidity rate associated with advanced kidney disease.[9]

Other subtle manifestation of uraemia include anorexia, nausea, abdominal pain (from uremic gastritis) - commonly mimicking the surgical abdomen; bone pains and amenorrhea.

The health care provider needs to be aware of the different faces and atypical manifestation of this ailment so as to aid early detection and institution of appropriate measure. Of note however, is that clinical symptoms and signs poorly predict kidney failure. Hence current clinical practice guidelines[10-11] emphasize the need for CKD prevention largely by screening of persons at increased risk of CKD. Estimation of kidney function from glomerular filtration rate (calculated from serum creatinine measurement[12-13]) and examination of urine for markers of kidney damage (proteinuria, haematuria, urine sediment abnormalities) form the cornerstone of such screening. The criteria for definition/detection of CKD are objective and can be ascertained by means of simple laboratory tests without identification of the cause of disease, thereby enabling detection of CKD by non-nephrologist physicians and other health professionals.

CONCLUSION

We report this case to remind health care providers that CKD can present in subtle and atypical ways. Hence a high index of suspicion is needed. The knowledge of health care providers need to be improved routinely by continual medical education and widespread dissemination of management guidelines for CKD. This will enable them to screen for CKD in a cost effective manner. Finally, any patient with diagnosis of CKD need education on his illness, its course, manifestation and the need to inform attending health worker of his condition to enhance appropriate care delivery.

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