CHRONIC RENAL FAILURE - PITFALLS IN DIAGNOSIS

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ABSTRACT

Chronic renal failure means progressive and irreversible destruction of nephrons involving almost every organ system of the body. Early diagnosis of the disease and conservative therapy can slow down progression towards end stage renal disease. Nocturia/polyuria, anaemia, hypertension, osteodystrophy, reduced kidney size and associated acute renal failure are features which help physician in an early diagnosis. Detailed evaluation of these features has been suggested.

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Introduction

Chronic renal failure (CRF) implies progressive and irreversible destruction of nephrons of at least 3-6 months duration. CRF leads to disturbances in function of every organ system. In majority of patients with CRF the signs and symptoms are referable to some other system with few manifestations relating to the urinary system. The presentation and manifestations vary greatly from patient to patient; depending upon the magnitude of reduction in functioning renal mass as well as the rapidity with which renal function is lost [1]. The diagnosis of CRF is often overlooked particularly in the early stages of the illness. Though it has a progressive downhill course, but with conservative therapy progression to end stage renal disease can be slowed. Hence the necessity of early diagnosis.

Generalized weakness/Nocturia/Polyuria

In the early stages of the illness, when the glomerular filtration rate (GFR) is reduced but not to levels below 35-50 per cent of normal, the patient is either asymptomatic or complains only of generalized weakness. The clinical examination or investigations do not reveal any significant abnormality. The patient is prescribed some tonics and his symptoms are often dubbed as functional. On

direct interrogation at this time many patients will come out with the history of nocturia, which is one of the earliest manifestations of CRF and often ignored by the patient as well as the physician [2]. Nocturia is due to a reversal of renal circadian rhythm of urine flow and not necessarily associated with polyuria [3]. Nocturia and polyuria are more likely to be early features of renal disease that predominantly affect the medulla [4] and in such conditions may be accompanied by hyposthenuria rather than isosthenuria. Hyposthenuria when carefully looked for is a common feature of CRF irrespective of the underlying disease [5].

History of nocturia not explained by a change in the drinking habits, cardiac failure or drugs is a good indicator of CRF and should be specifically asked for.

Urinary Abnormalities

It is a general belief that no renal disease can exist without some urinary abnormality on routine urinalysis. This is not so. Proteinuria is a frequent but not an invariable finding. CRF associated with chronic obstructive uropathy, polycystic kidney disease, analgesic nephropathy and the inactive end stage of any renal disease are excellent examples of conditions in which the urine contains little or no protein, cells, or casts [6]. On urinalysis the

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most specific finding for CRF is the presence of broad casts in the urinary sediment. The wide diameter of these casts reflects compensatory hypertrophy and dilation of the surviving nephrons [7].

On the other hand proteinuria does not always indicate renal disease. Orthostatic proteinuria is seen in 8-10 per cent of young adults. Long term follow-up in these patients have not revealed any evidence of renal disease [8,9].

Anaemia

Anaemia occurs regularly in CRF and the degree of anaemia tends to parallel the degree of renal dysfunction but there is a wide range at any level of GFR [2,10]. Since anaemia due to non renal causes is common in our country, the fact that anaemia can be a manifestation of CRF is often overlooked. A low haemoglobin value is often taken for granted particularly in women. In our country the picture gets further confounded since, due to nutritional factors and worm infestations, a significant number of patients have microcytic hypochromic anaemia or a mixed picture [11]. The patient with anaemia is prescribed hematinics without any work-up and the underlying renal disease is missed. It is therefore mandatory to investigate every case of anaemia if the peripheral blood film shows normocytic normochromic/mixed picture and the anaemia fails to respond to hematinics.

One should also remember that anaemia may not be present in the early stages of CRF or in certain renal diseases such as polycystic disease and obstructive uropathy, which may present with erythrocytosis rather than anaemia.

Besides pallor, nail examination is a helpful aid in diagnosis. Pitting, burrowing, leuconychia, half and half sign [12,13] showing lower area of nail as white and upper half as pink or brown are markers of CRF. In advanced renal failure, "tongue sign" i.e., a swollen tongue with teeth markings on the sides is a frequent observation [14].

Hypertension

Hypertension is a common feature and very often it is the first abnormality detected in a patient with the renal disease [15]. Hypertension, being a common disorder is also taken for granted to be

essential/primary by many practitioners and no effort is made to determine its aetiology. The diagnosis of CRF is therefore missed in many such cases. To avoid delay in the diagnosis renal disease should be suspected in the following conditions [16]: Hypertension in patients under 30 years of age, hypertensive patients who are difficult to manage pharmacologically and patients with an abrupt rise in blood pressure.

That hypertension is an integral feature of CRF is another misconception. Many patients with tubulo-interstitial disease do not have hypertension even when they reach end-stage renal disease.

Osteodystrophy

Osteodystrophy is a cardinal feature of CRF, however the usual clinical clues of renal bone disease - bone pains, proximal myopathy, pathological fractures, rickets or slipped epiphyses in children and adolescents are late manifestations. Radiological features such as subperiosteal erosions, looser zones, focal bony sclerosis and raised alkaline phosphatase are signs of chronicity but take many months or years to develop [17].

In many patients, particularly children, bone disease may be the initial manifestation of CRF and may precede other signs and symptoms by months or years. In such patients, the diagnosis of underlying renal disease is often missed unless there is a high index of suspicion.

On the other hand, the absence of bone disease does not exclude CRF. Out of 100 patients examined at the time of starting haemodialysis for CRF, only 6 had typical symptoms of renal bone disease and of 212 undergoing skeletal survey, two thirds had no typical features of renal osteodystrophy [18]. High quality films, use of magnification and manual processing can increase the pick-up rate for osteodystrophy.

Kidney size

Presence of a reduced kidney size on ultrasound, abdominal scout film or pyelography is the hallmark of CRF. However, in certain conditions like diabetic nephropathy, polycystic disease, amyloidosis, obstructive uropathy and crescentic glomerulonephritis the kidney size may be normal/enlarged.

Acute on Chronic Renal Failure

Any condition that can produce acute renal failure may worsen CRF and precipitate uraemia in an otherwise asymptomatic patient. The underlying chronic renal disease may be missed in these cases at the time of presentation and only be suspected when the course of acute renal failure is found to be atypical. CRF should be strongly suspected in a patient with acute renal failure if there is associated anaemia, hypertension, bone disease or reduced kidney size.

Conclusion

It is apparent from the above account that the diagnosis of CRF can be difficult at times, particularly in the early stages, because of the wide variation in its presentation and involvement of almost every system in the body. Many of the pitfalls in diagnosis can be avoided by a high index of suspicion and by taking into account the complete clinical picture.

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