

**Original article:**

## Study of usefulness of ultrasonography in renal disease

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### Abstract:

**Introduction:** Ultrasonography plays an important role in the diagnosis of renal disease. Due to its easiness, accuracy and availability, its role in diagnosis is very vital in emergency as well as in routine clinical practice.

**Materials and methods:** The present study was conducted in department of Radiology. Ultrasonography was performed on 80 patients randomly communing from referral from Medicine and surgery Department. We included only patient having confirmation of renal pain and patients clinically provisionally diagnosed as renal diseases cases. The complicated cases were excluded. The patients diagnosed provisionally were only included in present study. The sample size was estimated and confirmed from expert statistician. Other parameters were noted in MS Excel sheets.

**Results:** In our present study, out of total 80 patients 32 were male patients while 48 were female patients. The average age of the patients was 48 years . While with diagnosis of renal disease , we found out of 80 cases , there were 12 patients with acute renal diseases , 28 from CRD , 20 of UTI and 16 from other associated renal pain.

**Conclusion:** From present study we conclude that ultrasonography is an important diagnostic tool in renal diseases and CKD.

**Keywords:** chronic kidney disease

### Introduction:

Ultrasonography plays an important role in the diagnosis of renal disease. Due to its easiness, accuracy and availability, its role in diagnosis is very vital in emergency as well as in routine clinical practice. Sonography is the best screening modality to evaluate patients presenting with renal insufficiency.<sup>1</sup>Ultrasound findings can be normal in patients with renal disease, especially in prerenal azotemia and acute parenchymal renal disease. Echogenic kidneys indicate the presence of parenchymal renal disease; the kidneys may be of a normal size or enlarged. Small kidneys suggest advanced stage chronic kidney disease. Uncommonly, cystic disease of the kidney, especially adult type polycystic kidney disease may be the cause of the patient's renal insufficiency with bilaterally enlarged kidneys containing multiple cysts of various sizes.<sup>2</sup>

### Materials and Methods:

The present study was conducted in Department of Radiology. Ultrasonography was performed on 80 patients randomly communing from referral from Medicine and surgery Department. We included only patient having confirmation of renal pain and patients clinically provisionally diagnosed as renal diseases cases. The complicated cases were excluded. The patients diagnosed provisionally were only included in present study.

The sample size was estimated and confirmed from expert statistician. Other parameters were noted in MS Excel sheets.

In our present study 80 patients were reported during the period of two months. All other parameter age , gender, complaints , clinical features , other investigations were noted. The diagnosis was confirmed.

**Results:**

In our present study, out of total 80 patients 32 were male patients while 48 were female patients. The average age of the patients was 48 years .

Table 1) Age wise distribution of patients.

Age ( Years )	Number of patients
< than 20	6
21-40	22
40-60	32
>than 60	20

Table 2) Gender wise distribution of patients.

Gender	Number of patients
Male	32
Female	48

**Table 3) Diagnosis of renal pain using ultrasonography**

Diagnosis	Number of patients
Acute Kidney Injury	12
Chronic Renal disease	28
Renal stone	20
UTI	4
Others	16
Total Cases	80

While with diagnosis of renal disease , we found out of 80 cases , there were 12 patients with acute renal diseases , 28 from CRD , 20 of UTI and 16 from other associated renal pain.

**Discussion:**

Ultrasonography uses high-frequency sound (ultrasound) waves to produce images of internal organs and other tissues. A device called a transducer converts electrical current into sound waves, which are sent into the body's tissues. Sound waves bounce off structures in the body and are reflected back to the transducer, which converts the waves into electrical signals. A computer converts the pattern of electrical signals into an image, which is displayed on a monitor and recorded as a digital computer image. No x-rays are used, so there is no radiation exposure during an ultrasonography<sup>3</sup>

Ultrasonography (US) has largely replaced the intravenous urogram as the first modality for the evaluation of the kidneys in children suspected of having urinary tract abnormalities. Because many renal disorders are associated with changes in the sizes of the kidneys, normative standards for assessing renal size have been developed.<sup>4</sup> Ultrasound is commonly used in nephrology for diagnostic studies of the kidneys and lower urinary tract and to guide percutaneous procedures, such as insertion of hemodialysis catheters and kidney biopsy. Sonography is indicated in most cases of acute renal failure because of the single functioning kidney and the frequency of urologic complications.<sup>5</sup>

Sonography is a critical component of the evaluation of both acute and chronic renal failure; however, most nephrologists have a limited knowledge of this procedure. The acoustic properties, limited spectrum of pathological changes, and ease of visualization of the kidneys, coupled with the safety, simplicity, and low cost of sonography, make it the modality of choice for renal imaging.

**Conclusion:**

From present study we conclude that ultrasonography is an important diagnostic tool in renal diseases and CKD.

**References:**

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