Original Research Article

A study of CT in the renal colic patients at tertiary health care centre

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Abstract

Background: Renal colic is a worldwide problem affecting all races, gender, all age group. CT is the reference standard method for diagnosing urolithiasis, but it is also the major source of exposure to radiation during medical imaging. **Aim and objective:** To assess the role of CT (Computed Tomography) in diagnosis of renal colic patients at tertiary health care centre. **Material and methods:** Total 100 patients presented with renal colic to emergency department were studied. Sociodemographic data, clinical history recorded with pre tested questionnaire. Patients were investigated with CT scan. Data analyzed with appropriate statistical tests. **Result:** Most common affected age group for renal colic was 31-45 years. Males showed more incidence of renal stones than females. Sensitivity and specificity of CT scan was 100% each.
Key Word: renal colic.

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INTRODUCTION

Renal colic is one of the most common presentation observed in emergency department. Renal colic is due to obstructed stone in kidney or in the ureter. Ureteric colic occurs as a result of obstruction of the urinary tract by calculi at the narrowest anatomical areas of the ureter: the pelviureteric junction (PUJ), near the pelvicbrim at the crossing of the iliac vessels and then narrowest area, the vesicoureteric junction (VUJ). Urolithiasis may exist asymptomatically, but it is often presented by excruciating pain that originates from the flank and radiates to the genitals. Various imaging modalities are used for diagnosing the renal colic like x-ray KUB, ultrasonography and CT scan. CT can visualise all radiopaque stones, as well as radiolucent stones such as uric acid and cystine calculi .CT has higher sensitivity and specificity for calculus detection, it does not use intravenous contrast medium, it permits alternative diagnoses, and requires a shorter examination time.[1-4] The accuracy of non-contrast CT in detecting stone disease has been indisputable with sensitivity, specificity and positive predictive value of CT being reported as 96%, 100% and 100%,respectively.[5] CT scan has some limitations. It does not permit functional evaluation of the kidneys. It cannot assess the degree of obstruction and CT has higher radiation exposure of the patient compared with KUB or IVU[6]. Present study was conducted to assess the role of CT (Computed Tomography) in diagnosis of renal colic patients at tertiary health care centre.

AIM AND OBJECTIVE

To assess the role of CT (Computed Tomography) in diagnosis of renal colic patients at tertiary health care centre.

MATERIAL AND METHODS

Present study was conducted in 100 patients of renal colic attending emergency department in a tertiary care centre. Study was approved by ethical committee of institute. A

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written valid consent was taken from patients after explaining them the study. Data collection was done by a pre tested questionnaire. It includes sociodemographic data, detailed history and clinical examination. Allthese patients were presented in emergency department and then followed up in urology department. After complete history and clinical examination they were investigated with CT. On the day of CT examination, patient was ask to drink 1.5 liter of water to achieve proper hydration or distended bladder. All the metallic ornaments and jewellery were removed. The procedure was completely explained and breathing instructions were given. The need to remain absolutely still was emphasized. The scan was performed by standard K.U.B protocol on 16 slice light speed pro GE machine without using contrast material. All scans were performed with the protocol of institute.

Data was analyzed with appropriate statistical tests.

RESULTS

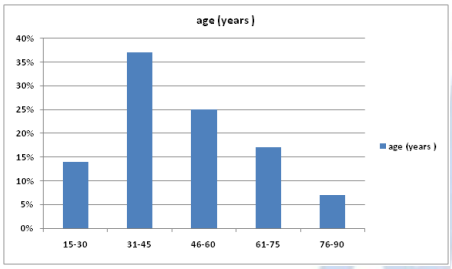

Figure 1: Distribution of patients according to age

Age of patients ranged from 18-89 years. Majority of the patients were in age group of 31-45 years (37%) followed by 46-60 years (25%). Patients above 75 years contribute 7%. Out of 100 patients 67 were males and 33 were females. Male to female ratio was 2:1. Left renal colic was more common (56%) presentation than right sided colic(44%). On CT scan out of 100 patients 45 patients were detected with stone. Among these stones 4 stones were radiolucent. In kidney there were 17 stones. Ureteric stones were 28. In ureter 11 stones were in upper ureter, 4 were in middle part of ureter and 13 were in lower part of ureter. All cases were treated according to protocol of urology department. Renal stones were confirmed on operative retrieval or spontaneous passage. Sensitivity of CT scan in diagnosing renal stones was 100% and specificity was 100%.

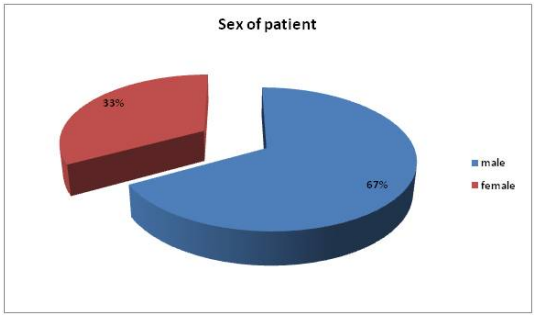

Figure 2: Distribution of patients according to sex

DISCUSSION

Age of patients ranged from 18-89 years. Majority of the patients were in age group of 31-45 years (37%) followed by 46-60 years (25%).Similar findings were observed in Mumtaz Ahmad *et al*[7]where they found that Sixty three patients out of 76 (83%) presented in between 3rd to 5th decade of life. Out of 100 patients 67 were males and 33 were females. Male to female ratio was 2:1. similar findings were seen in Abhay Kasliwal *et al*[8]where theyobserved male to female ratio of 2.7:1. Left renal colic was more common (56%) presentation than right sided colic (44%).Similar observations were noted in previous studies[7,8] where left side renal colic was more common. On CT scan out of 100 patients 45 patients were diagnosed as renal stones. Similar findings were observed in previous[9] studies where incidence of renal stone was 40 %. In our study Sensitivity of CT scan in diagnosing renal stones was 100% and specificity was 100%. Similar findings were observed in previous studies[10,11,12] where sensitivity and specificity ranged from 96-100%.

CONCLUSION

CT scan has 100% sensitivity and 100% specificity in diagnosing renal stones.

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