

CORRELATION BETWEEN THE AGE AND THE HISTOLOGICAL TYPES OF RENAL CELL CARCINOMA**Dr. Sarah Khudhair Obayes^{1*} and Dr. Nazar Abdul Hassan Alwakeel²**¹The Arab Board of Health Specializations Baghdad Medical City Hospital,²Medical City Hospital Baghdad, Department of Teaching lab.***Corresponding Author: Dr. Sarah Khudhair Obayes**

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ABSTRACT

Background: Renal cell carcinoma (RCC) is account 2%–3% of all adult carcinoma. It is more common present in older age group, and it is present between 50 and 70 years of age. However, diagnosis of renal cancer is occur more in patients younger than 40 years of age compering with older age patients. It would be believed that renal cancer arising in young adults likely to have symptoms and aggressive behavior.

Objective

1. To detect the frequency of each types of renal cell carcinoma.
2. To correlate the types with age of patient.

Material and Method: This is retrospective study, case series study, conducted on 100 patient present with renal cell carcinoma, data collected from Baghdad medical city and Ghazi AL Hariri hospital in IRAQ, in period from January 2019- October 2020. **Inclusion criteria:** patient age, TNM staging, Fuhrman grade, tumor size and histological types. **Exclusion criteria:** M stage not record because it is not mentioned in most of the patients while we taking the information. Formalin fixed & paraffin embedded tissue blocks of nephrectomy specims, were used. For each case, the histopathological reports reviewed regarding final diagnosis, age of patients, TNM staging, Fuhrman grade, tumor size and histological types. Also, H&E stained slides were reviewed whenever accessible and the histological types of RCC were classified according to WHO classification system. **Result:** During the study period, a total of (n) 100 patients were admitted with histopathological proven RCC. The patients divided in two age group ≤ 40 years and > 40 years, the Mean \pm Std age at diagnosis was (1.40+0.56) and (1.28+0.45) respectively, range: 30–79, and 70% of the patients were males. The Mean \pm Std tumour size was (1.45+0.61) cm (range: 1-23 cm). The two age groups included ≤ 40 years was 15 patients (15%) and ≥ 40 years 85 (85%) patients. The four main histologic subtypes were clear-cell, papillary, chromophobe and Sarcomatoid carcinomas, accounting for 60%, 29%, 4% and 7% of the cases, respectively. Organ-confined (T1–T2) and low-grade tumours (grade 1–2) accounted for 45% and 65% of the cases, respectively. The vast majority of patients had no nodal (n=12:12.0%). **Conclusion:** Our study concludes that older age (> 40 yrs) patients were more affected by RCC specially clear RCC, and male predominance, while the histological grade and stage were the same in both age groups.

KEYWORDS: clear-cell, papillary, chromophobe and Sarcomatoid carcinomas.**1. INTRODUCTION**

Renal cell carcinoma (RCC) occur in the renal cortex or the epithelial lining of renal tubules. It is divided into clear cell RCC, papillary RCC, and chromophobe RCC, which about 85% of all the primary renal carcinoma. The remaining 15% consist of transitional cell carcinoma, Wilms tumor or nephroblastoma, tumors of the collecting ducts and renal sarcomas.^[1] Renal cell carcinoma (RCC) is about 2%–3% of all adult carcinoma. It is more common present in older age group, and it is present between 50 and 70 years of age.^[2] In IRAQ, the renal cell carcinoma account around 3.29% and considered the 10th cause of death among male.^[3] The causes Renal cell carcinoma can develop due to

genetic or acquired.^[2] However, diagnosis of renal cancer is occur more in patients younger than 40 years of age compering with older age patients. It would be believed that renal cancer arising in young adults likely to have symptoms and aggressive behavior, so need aggressive treatment.^[4] On the other hand, the widespread use of radiological imaging in elderly lead to an increasing the discovery of tumours are being with potentially indolent growth and behavior.^[5]

AIM OF STUDY

- 1:to detect the frequency of each types of renal cell carcinoma.

- 2: to correlate the types with age of patient.

2. MATERIAL AND METHOD

- This is retrospective study, case series study, conducted on 100 patient present with renal cell carcinoma, data collected from Baghdad medical city and Ghazi AL Hariri hospital in IRAQ, in period from January 2019- October 2020.
- Inclusion criteria: patient age, TNM staging, Fuhrman grade, tumor size and histological types.
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Formalin fixed & paraffin embedded tissue blocks of nephrectomy specims, were used. For each case, the histopathological reports reviewed regarding final diagnosis, age of patients, TNM staging, Fuhrman grade, tumor size and histological types. Also, H&E stained slides were reviewed whenever accessible and the histological types of RCC were classified according to WHO classification system.

2.1 STATISICAL ANALYSIS

Various clinic pathological variables were analyzed using Statistical Package for the Social Sciences SPSS statistic 20 program. A probability of < 0.05 was used to assign significant differences.

3. RESULTS

3.1. Characteristics of the general population

During the study period, a total of ($n = 100$) patients were admitted with histopathological proven RCC. The patients divided in to two age group ≤ 40 years and < 40 years, the Mean \pm Std age at diagnosis were (1.40 ± 0.56) and (1.28 ± 0.45) respectively, range: 30–79, and 70% of the patients were males. The Mean \pm Std tumour size was (1.45 ± 0.61) cm (range: 1-23 cm). The two age groups included 15 (15%) and 85 (85%) patients, respectively. The four main histologic subtypes were clear-cell, papillary, chromophobe carcinomas and Sarcomatoid, accounting for 60%, 29%, 4% and 7% of the cases, respectively. Organ-confined (T1–T2) and low-grade tumours (grade 1–2) accounted for 45% and 65% of the cases, respectively. The vast majority of patients had no nodal ($n=12:12.0\%$). Which explain in Table 3-1.

Table 3-1: Characteristics of the general population.

Variables	Number (%)
Age (yr)	
<40	15(15.0%)
≥ 40	85(85.0%)
Tumer Size	
<6	58(58.0%)
≥ 6	41(41.0%)
Pathological T stage	
T1	37(37.0%)
T2	8 (8.0%)
T3	52(52.0%)
T4	3 (3.0%)
Histology	
Clear	60 (60.0%)
Papillary	29 (29.0%)
Chromophobe	4(4.0%)
Sarcomatoid	7 (7.0%)
N stage	
Nx	87 (87.0%)
N0	12 (12.0%)
N1 -2	1 (1.0%)
Nuclear grade	
Grade 1-2	65 (65.0%)
Grade 3-4	35(35.0%)

3.2 Comparison between age groups

Results regarding the relationship between age groups and pathological features in RCC are summarized in Table 3-2. Gender ratio non-significant differences with age group and negative correlation ($p = -0.372$). As well as, Tumer Size non-significant differences and positive correlation ($p = 0.568$). While as, The likelihood for having organ-confined tumours decreased with age, tumour stage were significantly ($p < 0.02$) and positive correlation with age, moreover, T1–T2 and T3 – T4 tumours accounting for 46.7%, 44.7%, 53.3 and 53.3% of the two age group, respectively. No difference was found among the two groups regarding N stage ($p = 0.821$). Histologic subtype was non-significant differences with age group and negative correlation ($p = -0.271$). For patients 40 yr, the proportion of clear-cell carcinomas was increased, while the proportion of papillary and chromophobe carcinomas reduced. Also, the similar proportion of different histologic subtypes for age group beyond 40 yr. As well as, Fuhrman grade was also related and positive correlation with age ($p < 0.02$). Low-grade tumours (G1–G2) accounted for 66.7% of patients under the age of 40 yr, whereas it accounted for 64.7% of those older than 40.

Which explain in Table 3-2.

Table 3-2: Association between age and pathologic variables in renal cell carcinoma.

Variables	Age (yr) <40	Age (yr) ≥40	Total	P value
Male	9(60.0%)	61(71.8%)	70(70.0%)	- 0.372
Female	6(40.0%)	24(28.2%)	30(30.0%)	
Tumor Size				0.568
<6	10(66.7%)	50(58.0%)	60(60.0%)	
≥6	5(33.3%)	35(41.2%)	40(40.0%)	
Pathological T stage				0.02
T1-T2	7 (46.7%)	38 (44.7%)	45 (45.0%)	
T3 -T4	8 (53.3%)	47 (53.3%)	53 (55.0%)	
Histology				-0.271
Clear	8 (53.3%)	52 (61.2%)	60 (60.0%)	
Papillary	4 (26.7%)	25 (29.4%)	29 (29.0%)	
Chromophobe	2(13.3%)	2(2.4%)	4(4.0%)	
Sarcomatoid	1(6.7%)	6 (7.1%)	7 (7.0%)	
N stage				0.821
Nx	14 (93.3%)	73 (85.9%)	87 (87.0%)	
N0	1(6.7%)	11 (12.9%)	12 (12.0%)	
N1 -2	0 (0.0%)	1 (1.2%)	1 (1.0%)	
Nuclear grade				0.02
Grade 1-2	10 (66.7%)	55 (64.7%)	65 (65.0%)	
Grade 3-4	33 (33.3%)	30 (35.3%)	35 (35.0%)	

4. DISCUSSION

The incidence of renal cancer in Iraq and Jordan is 1.6% and 2% respectively, while about 1.8% in both Syria and Lebanon. In Iraq, it is considered the second most common urological tumor after bladder cancer, and considered the 3rd cancer in Jordan after prostate and bladder cancers respectively.^[6] Internationally, the incidence ranging from 22 per 100,000 in Czech men to <1 per 100,000 in Africa.^[7] As all we know the RCC is a disease of elderly. The first study is carried out in the eastern part of India addressing this issue. Epidemiological data from the Kolkata, West Bengal, India have shown that 18.0% of patients with renal tumor were less than 40 years of age,^[8] while in our study 15.5% of patients were below the age of 40 years.

On considering the histological subtype of RCCs, ccRCC is the most common which is known as “conventional” RCC, which present in 75.0%–80.0% of all RCCs in two age groups.^[8] Our study also showed the same result for clear-cell RCC in both the age groups but we found more patients with papillary RCC in older age group than younger age group (26.7% vs. 29.4%, P = - 0.271). However, patients younger than 40 yr were more likely to have clear RCCs than other type. These results disagree with the results of other study.^[12-9]

In our study of patients with RCC young adults presented with renal tumors that had more favorable histological features. These results agree with the results of other study^[12], while disagree with the results of other study.^[13]

Mainly, the patients in this study, have No difference for N stage was identified among age groups, many series found similar results to ours^{[9][14][11]}, although disagree with the results of other study.^[13]

However, patients younger than 40 yr were more likely to have clear RCCs than other type. These results disagree with the results of other study.^[12-9]

5. CONCLUSION

Our study showed that higher number of older (> 40 yrs) patients were diagnosed with RCC especially clear cell RCC, with male predominance, and the histological features grade and stage appears similar between the age group ≤ 40 yrs and age group > 40 yrs.

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