International Journal of Clinical Urology
2021; 5(2): 108-112
http://www.sciencepublishinggroup.com/j/ijcu
doi: 10.11648/j.ijcu.20210502.20
ISSN: 2640-1320 (Print); ISSN: 2640-1355 (Online)

Adult Kidney Cancer: Epidemiology, Diagnostic and Therapeutic Aspects of Brazzaville University Hospital

Ondziel Opara Steve Aristide[1, *], Ondongo Atipo Armel Melvin[1], N'gotene-diembi Synclair[1], Banga Mouss Roland Bertille[1], Dimi Nyanga Yannick Ijosdi[1], Odzébé Anani Wencesl Severin[1], Bouya Prosper Alain[1], Peko Jean Felix[2]

[1]Department of Urology and Andrology, University Hospital of Brazzaville, Brazzaville, Congo

[2]Department of Pathological Anatomy, Hospital and University Center, Brazzaville, Congo

Email address:

sondziel@yahoo.fr (O. O. S. Aristide)

[*]Corresponding author

To cite this article:

Ondziel Opara Steve Aristide, Ondongo Atipo Armel Melvin, N'gotene-diembi Synclair, Banga Mouss Roland Bertille, Dimi Nyanga Yannick Ijosdi, Odzébé Anani Wencesl Severin, Bouya Prosper Alain, Peko Jean Felix. Adult Kidney Cancer: Epidemiology, Diagnostic and Therapeutic Aspects of Brazzaville University Hospital. *International Journal of Clinical Urology.* Vol. 5, No. 2, 2021, pp. 108-112.
doi: 10.11648/j.ijcu.20210502.20

Received: November 17, 2021; **Accepted**: December 14, 2021; **Published**: December 24, 2021

Abstract: Objective: to report epidemiological, diagnostic and therapeutic aspects. Patients and Methods: This was a retrospective study conducted in the urology-Andrology Department of Brazzaville Hospital and University Center, from January 1, 2000, to December, 31, 2018. Results: Its overall incidence of kidney cancer was 1.4%. The mean age of the patients was 50,8±15.33 years with an H/F sex ratio of 1.3. Forty-seven patients were from Brazzaville and 12 patients from the rural area. There were 13 and nine (figure 1) among farmers and traders respectively. Three risk factors were found. These were tobacco in 57.14% of cases, HBP in 28.57% of cases and obesity in 14.29% of cases. Hematuria was the most common symptom in 49.1%. Kidney ultrasound (76.27%) coupled with the computer tomography scan (94.91%) made it possible to make the diagnosis. Expanded nephrectomy was performed in 55 patients (96.36%) with an under-capital approach. The average length of hospitalization was 9.6 days±4.15 with extremes of 5 to 21 days. Clear cell carcinoma (CCC) was the most common histological type in 75% of cases. In 6 months, survival was 81.3% and in 12 months 37.3%. Conclusion: Adult kidney cancer is an infrequent condition at the University Hospital of Brazzaville. Its diagnosis is made with the couple ultrasound/computer tomography scan; Expanded nephrectomy remains the reference treatment.

Keywords: Kidney, Cancer, Adult, Computer Tomography Scan, Nephrectomy, Brazzaville

1. Introduction

Adult kidney cancer (KC) is a primitive malignant tumor of the renal parenchymal [1]. It's the 3rd most common urological cancers [2]. Globally, approximately 270,000 cases of kidney cancer are diagnosed each year, and 116,000 peoples die from it [3]. In Africa, its incidence is low [4]. Indeed, in Algeria, there is a frequency of urological cancer by 8.6% [5], while in Senegal it is 14.9% [6]. In Congo Brazzaville, two studies reported frequencies of 1.13% respectively in 2004 [6] and 0.01% in 2011 [2] of adult KC.

Several risk factors have been identified as being responsible for the occurrence of KC. These are patient-related risk factors, including smoking, obesity, High Blood Pressure (HBP), genetic abnormalities and kidney failure in long-term dialysis patients with onset of acquired renal cystic disease, and environmentally related patients, i.e. pollution in the steel, metallurgical, petroleum products and pesticide exposure containing cadmium [5].

The increasing use of ultrasound and abdominal computerized tomography (CT) scan has increased the diagnosis of pre-symptomatic kidney cancer in the West by 70% [7]. Whereas in Africa, in general, the diagnosis is still made after the appearance of clinical signs [6]. Total hematuria is the classic symptom of adult KC [8].

Anatomopathological examination is essential because it

allows the identification of histological types. Clear cell carcinoma (CCC) is the most common histological type in 70% of cases [3].

The therapeutic possibilities at present include: nephrectomy (partial, enlarged) by conventional or laparoscopic surgery, immunotherapy (cytokines, anti-angiogenic, growth factor receptor inhibitors, transduction inhibitors of proliferation and survival signals), chemotherapy [5].

In Congo Brazzaville, according to the last study conducted in 2011, his diagnosis is often late and the extended nephrectomy remains the reference treatment [8]. This is how we decided to conduct this study with the objective of studying the current epidemiological and clinical and therapeutic aspects of kidney cancer and the evolution of its profiles over the last decade.

2. Patients and Methods

This was a retrospective descriptive study that covered nineteen years from January 1, 2000, to December 31, 2018.

Were included patients over the age of 18 years, whom the clinical and paraclinical examinations had allowed to retain the diagnosis of kidney cancer and benefited a management. The variables studied were epidemiological, diagnostic, therapeutic and evolutionary.

All the information obtained was reported on an investigation sheet.

We have chosen to conduct a retrospective study. As a result, the total number of patients needed to carry it out corresponded with all patients hospitalized for renal cancer during the last nineteen years.

The parameters studied were: frequency, age, sex, provenance, occupation, carcinogenic risk factors, discovery circumstances, consultation time, clinical signs, results of follow-up examinations (results of this assessment, tumor size, affected sides, seat) biological balance (creatinemia), histological type, tumor stage, type of surgery performed, its results and evolution. We were able to calculate the average length of hospitalization and overall survival in 6 and 12 months (the number of deaths, sight loss, metastatic recurrence, complete and partial remissions). The survival curve was achieved with the biostat gv software using the Kaplan-Meier method.

The data entry was carried out using the software Epi info version 7.2.1.0 French language as well as the various calculations. The data analysis was done with the SPSS 22.0 software for Mac and the various tables were generated using the Microsoft Excel version 2016 software.

The statistical analysis included a descriptive phase of the study population. For quantitative variables, we calculated averages and standard deviations.

3. Results

3.1. Epidemiological Aspects

Between January 1, 2000, and December 31, 2018, 4.182 patients were admitted to the urology and andrology department. Fifty-nine of them had adult kidney cancer at a frequency of 1.4%. Its incidence of urological cancer was 7.79%. This makes it the third urological cancer after prostate cancer (71.6%) and bladder (16.78%).

The average age, when patients were diagnosed, was 50.8±15.33 years with extremes of 19 and 80 years. The median was 52 years.

The sex ratio was 1.3.

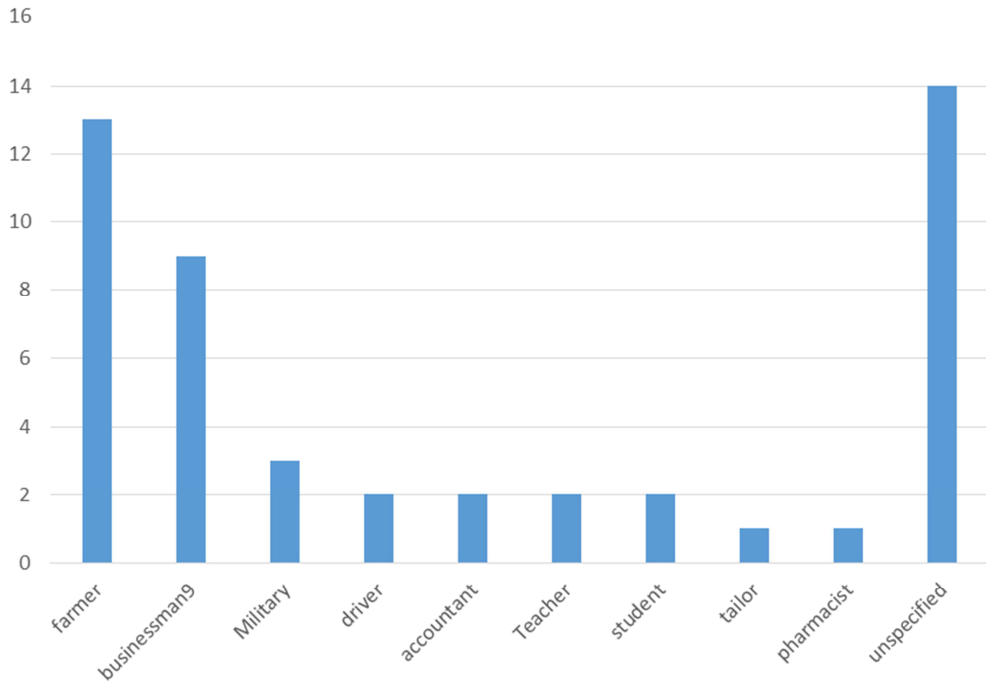

Figure 1. *Breakdown of patients by occupation.*

Forty-seven patients were from Brazzaville and 12 patients from the rural area.

There were 13 and nine (figure 1) among farmers and traders respectively.

Three risk factors were found. These were tobacco in 57.14% of cases, HBP in 28.57% of cases and obesity in 14.29% of cases.

3.2. Clinical Aspects

Kidney cancer was symptomatic in 56 patients (95%).

Twenty-nine patients had hematuria (49.1%) 27 patients (45.7%) mass in lumbar fossa and 21 cases, pain of the lumbar pit (35.6%). The triad pain in the lumbar region, enlarged kidney and hematuria was found in two cases (3.3%).

3.3. Paraclinical Aspects

Average creatinemia was 21.12±9 mg/ml with extremes that ranged from 15 to 58 mg/ml.

The renal ultrasound was performed in 45 patients and made it possible to diagnose 27 patients while the CT scan in 56 patients (Table 1).

Table 1. *Morphological Balance Results.*

Morphological balance sheet	Effective	Frequency (%)
Kidney ultrasound		
Heterogeneous tissue mass	27	96,42
Doppler ultrasound		
Kystic tumor	1	3,57
CT scan		
Heterogeneous tissue mass	20	35,71
Necrotis	26	46,43
Calcifications	8	14,29
Tissue mass with liquid component	2	3,57
Chest X-ray		
Hilar adenopathy	2	7,14

Thanks to this examination (CT scan), we were able to determine the size of the tumors. The average tumor size was 10.82±9.6 cm, with extremes ranging from 6 to 19 cm. In addition, left kidney disease was found in 51.72% of cases and in 1.73% it was bilateral.

Anatomopathological examination found 42 patients with clear cell carcinoma. The other histological types found were nine cases of a chromophobic carcinoma, three cases of transitional cell carcinoma and two cases of a papillary carcinoma, respectively.

Thirty-eight (38) patients were classified as T2bN0M0 (Table 2).

Table 2. *Patient Distribution by TNM Classification.*

Stade TNM	Effective	Frequency (%)
T2bN0M0	38	67,86
T2bN0NI	5	8,92
T2bN1M0	1	1,79
T2bN1M1	1	1,79
T3bN0M0	1	1,79
T3aN0M0	8	14,29
T3N0M0	2	3,56

3.4. Therapeutic Aspects

Fifty-five patients (93.22%) had undergone surgical treatment. This was an enlarged nephrectomy. The first lane under costal was used in 96.36% of cases. The above and sub-umbilical median was achieved in 3.64% of cases.

Chemotherapy based on vinblastine and interferon alpha had been indicated in a patient with metastases.

The average length of hospitalization was 9.6 days±4.15 with extremes of 5 to 21 days.

3.5. Evolutionary Aspects

One patient died as a result of a post-operative first day hemorrhage. Two patients had parietal suppuration and in 52 patients, the surgical suites were simple.

Overall survival in 6 months was 81.3% and in 12 months 37.3% (figure 2).

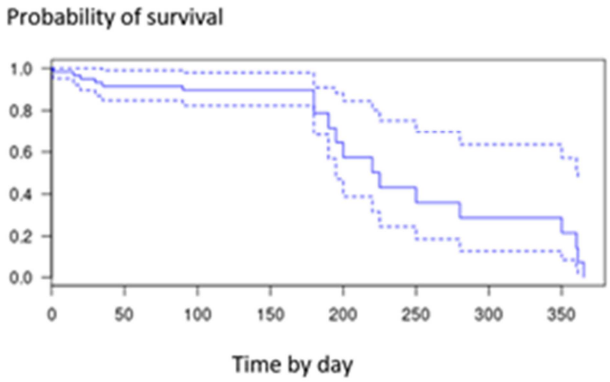

Figure 2. *Survival curve for kidney cancer patients.*

Two cases of metastasis, One case of partial remission and 45 cases of complete remission were found in 6 months. While after 12 months of treatment, three patients were in partial remission, 17 in complete remission and 1 patient in therapeutic failure.

4. Discussion

KC is the third common cancer of urological cancers [9]. Its frequency compared to other urological cancers is low. It was 7.79% in our series, corresponded with the literature [10].

KC is a condition that most often occurs around the 50th [11] Our results are similar to the work of Odzébé and Tengue where the average age was 47.6 years [2] and 48.1 years respectively [12]. In light of the above, we find that in black Africa, KC affects younger adults more. Some authors justify this by the development of family forms (VHDL) [13]. In developed countries, however, it usually occurs between the 6th and 7th decade [14].

A male predominance with a sex ratio of 1.3 had been found. In the literature there is no reason for this predominance [15].

Farmers are the most affected with a rate of 22.04%. Yet there is no correlation between any profession and the occurrence of the KC. However, the explanation we can

provide is farmers' exposure to pesticides that contain cadmium. It is a carcinogenic risk factor found in pesticides. Long-term exposure to this pesticide would increase the risk of developing this cancer [16]. Other risk factors most common were tobacco, high blood pressure and obesity. These results are superimposed on those of the literature [5].

The clinical symptomatology of KC is polymorphic. It can combine lumbar mass, lumbar pain and hematuria. The majority of patients in our series, consulted after the appearance of clinical signs. Fall et al. [6] achieved the same results. These are the symptoms that guide patients in consultation. Hematuria was the most common symptom, as in Benjelloun et al [17]. The other most common symptoms in our series were, a palpable lumbar mass and pain from the lumbar pit. This leads some authors to believe that there is a disparity in the distribution of signs [6]. The classic triad made of hematuria, pain of the lumbar pit and palpable lumbar mass is rare. It is found in only 1.73% of cases in our series and in 3.3% of cases in the literature [2]. It is the translation of an advanced KC. The first use of a physiotherapist rather than a clinician on the one hand and the presence of lower back pain during physical examination, which can often be confused with common low back pain on the other hand, explain the fact that the patient consults late and therefore that the diagnosis is made at an advanced stage. In the West, however, accidental discovery is the main circumstance of discovery [18].

Given the delay in diagnosis, making an early diagnosis using biomarkers would be ideal. At present, no biomarker has been validated for patients with KC [19], however molecules such as glutathione peroxidase 1 (GPX1) appear to have promising results because according to some authors its over expression would promote the progression of Clear Cell Carcinoma (CCC). However, the molecular mechanisms of this over expression and its role in KC stimulation remain unclear. [20]

The most performed paraclinical examinations by our patients were the CT SCAN couple and renal ultrasound. Both tests are requested as a first-line diagnosis of KC [21].

A heterogeneous tissue mass with outbreaks of necrosis and calcifications has been found as in Roy et al. [22] which deduce that the diagnosis of KC is based on the finding of a tissue mass taking contrast in a heterogeneous rather than homogeneous, frequently necrotic manner. Pulmonary localization is the most common secondary location, which corresponds to the literature [23].

Several histological types are reported on KC. In our series, the most common histological type was CCC. The prevalence of this histological type is also reported in the literature [8]. CCC is the histological subtype responsible for the majority of metastasis confirmed by our results.

Other histological types including chromophobic cell carcinoma and papillary carcinoma were also reported by other authors [24]. Fifty-five patients had undergone an enlarged nephrectomy. These results are similar to those of Ndoye et al. who showed that enlarged nephrectomy was performed in all patients with kidney tumors [25]. The first route of enlarged nephrectomy most common in our study was the Costa track. Expanded nephrectomy is performed for cancer larger than 10 cm [26]. The first standard route for locally advanced KC is the open lane. Several series report the feasibility of the first laparoscopic or laparoscopic robot-assisted pathway that are conditioned by use provided that microscopical, healthy exeresis from an adequate pathological margin around cancer be obtained [27]. These surgical techniques have some advantages over open surgery, including minimal blood loss, decreased post-operative pain and length of hospitalization [28].

Only one patient had received chemotherapy (based on Vinblastine and interferon alpha). The chemotherapy protocol did not agree with the new recommendations [26]. Until 2005, medical treatment for metastatic cancer was cytokines. Currently, targeted therapy is recommended. The first-line molecules are sunitinib and pazopanib [26]. Unfortunately, the high cost of these molecules is a hindrance to its use because the majority of our populations live at the poverty line and do not always have health coverage.

Despite improved systemic therapy options, targeted therapy at disease extension sites remains an important element in the personalized management of advanced KC. These treatments may include surgical resection (metastasis), radiotherapy and other ablative procedures [29]. However, due to the lack of an adequate technical platform, this type of treatment is not yet available to us.

The average length of hospitalization was 9.6 days. This is similar to the results of Ndoye et al. who found an average hospital stay of 8 days [25]. After the completion of the enlarged nephrectomy, the surgical suites were simple in the majority of cases. However, parietal suppuration was noted in two patients.

Overall survival in 6 months was 81.3% and in 12 months 37.3%. In Europe, overall survival is 93% in Stage I, 72.5% in Stage II, III and 12% in Stage IV [30]. Despite the delay in management, overall our survival rate is high, and these results are similar to those of Ndoye et al [25].

5. Conclusion

Adult kidney cancer is an infrequent condition at Brazzaville University Hospital. Risk factors associated with this condition include exposure to pesticides, smoking, obesity and high blood pressure. Hematuria remains the main symptom. His diagnosis is easy thanks to the couple kidney ultrasound and CT scan. His reference treatment is open-extended nephrectomy. After anatomopathological analysis of the surgical part, renal cell carcinoma is the most commonly encountered histological form. Although the consultation is late, the survival rate is satisfactory. Improving our technical plateau by bringing in the scintigraphy and so-called minimally invasive surgery would be wise as it would reduce hospitalization time and postoperative pain.

6. Recommendations

A focus on prevention should be placed so that patients are diagnosed early and benefit from less radical treatment.

Conflict of Interest Statement

All the authors do not have any possible conflicts of interest.

References

[1] Chow WH, Dong LM, Devesa SS. Epidemiology and risk factors for kidney cancer. Nat Rev Urol. 2010; 5 (7): 245-57.

[2] Odzébé AWS, Bouya PA, NKoua Mbon JB et al. Le cancer du rein de l'Adulte: 25 observations. C Clin Afr. 2011; 10 (2): 15-9.

[3] Ljungberg B, Campbell SC, Choi HY et al. L'épidémiologie du carcinome à cellules rénales. Eur Urol. 2011; 4: 615-21.

[4] Parkin DM, Jemal A, Bray F et al. Cancer in Sub-Saharan Africa III. UICC (2019) Accessed december 18, 2020.

[5] Salah R, Zeeggai S, Sellam F, Merabent NM, Moullessehoul S, Bedjaoui M. Cancers urologiques en Algérie: profil histo-épidémiologique à propos de 348 cas. J Afr cancer 2015; 7: 126-31.

[6] Fall B, Diao B, Sow Y et al. Le cancer du rein chez l'Adulte au Sénégal: aspects épidémiologiques actuels et évolution du profil sur les deux dernières décennies. Prog Urol. 2011; 21 (8): 521-6.

[7] Méjean A. Progrès dans les traitements des cancers du rein. Néphro Thérap 2017; 17: 154–9.

[8] Bouya PA, Lomina D. Diagnostic et traitement du cancer du rein de l'adulte. Carcinol Prat. Afr. 2004; 5: 16-8.

[9] Qarro A, Ammani A, Bazine K et al. La chirurgie conservatrice dans le cancer du rein. Afr J of Urol. 2013; 19 (4): 205-10.

[10] Yaméogo CA, Ouédraogo AS, Ouattara A et al. Urological Cancers in Burkina Faso: Epidemiological and Anatomopathological Aspects of 2204 Cases. OJU 2020; 10; 111-22.

[11] Salah R, Harir N, Zeggai S, Sellam F, Merabent NM. Cancers urologiques en Algérie: profil histo-épidémiologique à propos de 348 cas. J Afric Cancer 2015; 7: 126-31.

[12] Tengue K, Kpatcha TM, Sonhaye L et al. Le cancer du rein de l'Adulte au Togo: Fréquence, diagnostic, traitement et évolution. Uro Andro. 2015; 1 (4): 177-82.

[13] Schmidt LS, Linehan WM. Genetic predisposition to kidney cancer Semin Oncol 2017; 43 (5): 566–74.

[14] Andreas T, Martin B, Ann- Helen S et al. Tumor characteristics and surgical treatment of renal cell carcinoma in Sweden 2005-2010: a population – based study from in the National Swedish kidney cancer register. Scandinavian J of Urol. 2014; 48 (3): 231-8.

[15] Ferlay J, Soerjomataram I, Dikshit R et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer. 2015; 136: 359-86.

[16] Ju Kun S, Hong L, Yin Hai Y et al. Association between Cadmium exposure and renal cancer risk: a meta-analysis of observational Studies. Scientific. 2015; 5 (1): 1-8.

[17] Ljungberg B, Bensalah K, Bex A al. EAU Guidelines on Renal Cell Carcinoma; 2014 upsade. Eur Urol 2015; 67 (5): 913-24.

[18] Charles T, Lindner V, Matau A, Roy C, Lang H. Cancer du rein. EMC – Urologie 2010; 3 (4), 1–30.

[19] Oosterwijk E, Rathmell WK, Junker K et al. Basic research in kidney cancer. Eur Urol 2011; 60 (4): 622–33.

[20] Cheng Y, Xu T, Li S. GPX1, a biomarker for the diagnosis and prognosis of kidney cancer, promotes the progression of kidney cancer. AGING 2019; 11 (24): 12165-76.

[21] Finelli A, Ismaila N, Bro B et al. Management of Small Renal Masses: American Society of Clinical Oncology Clinical Practice Guideline. J Clin Oncol 2017; 35 (6): 668-80.

[22] Roy C, Gengler L, Sauer B, Lang H. Rôle de l'échographie de contraste dans l'évaluation des tumeurs rénales. J Radiol. 2008; 89 (11): 1735-44.

[23] Mejean A, Lebret. Prise en charge du cancer du rein métastatique. Prog Urol. 2008; 18 (7): 298-307.

[24] Albasri AM, El-Siddig AA, Hussainy AS, Alhujaily AS. Clinicopathologic Patterns of Adult Renal Tumors. S J of Med Medical Sci 2017; 5 (3): 242-7.

[25] Ndoye M, Niang L, Natchagande M, Jalloh M, Labou, Gueye S. Néphrectomie: indications- techniques et résultats du service d'urologie de l'hôpital général de Grand Yoff de Dakar. Uro'Andro. 2014; 1 (2): 121-8.

[26] Albiges L, Bensalah K, Bernhard JC et al. Recommandations françaises du comité de cancérologie de l'afu-actualisation 2018-2020: prise en charge du cancer du rein. Prog Urol. 2018; 1 (28): 3-31.

[27] Bragayrac LA, Abbotoy D, Attwood K et al. Outcomes of minimal invasive vs openradical nephrectomy for the treatment of locally advancedrenal cell carcinoma. J Endourol 2016; 30 (8): 871-6.

[28] Ebbing J, Wiebach T, Kempkensteffen C et al. Evaluation of perioperative complicationsin open and laparoscopic surgery for renal cell cancer withtumor thrombus involvement using the Clavien-Dindo classi-fication. Eur J Surg Oncol 2015; 41 (7): 941-52.

[29] Graham J, Heng DYC, Brugarolas J, Vaishampayan U. Personalized. Management of Advanced Kidney Cancer. Am Soc Clin Oncol Educ Book. 2018; 38: 330–41.

[30] Howlander N, Noone AM, Krapcho M et al. SEER cancer statistics review 1975-2016. Natl. Cancer Institute 2019. Accessed december 18, 2020.