Characteristics of Kidney Cancer Patients At Hasan Sadikin Hospital, Bandung

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INTRODUCTION

Kidney cancer is the 7th most common cancer in men and 10th in women, constituting 5% and 3% of all malignancies in the respective genders [1]. The worldwide incidence of RCC reaches 4 cases per 100,000 people yearly, with a mortality rate of 2.2 per 100,000 cases [2]. In Indonesia, kidney cancer cases have significantly increased from approximately 1.4–1.8 to 2.4–3 per 100,000 population [3]. Gender imbalance was observed, with a male-to-female ratio of 2:1 among 635 reported cases from 2013 to 2017. Furthermore, a substantial 45% were diagnosed at an advanced stage [4]. Several factors contribute to RCC development, including smoking, obesity, and hypertension. Additionally, specific medical conditions such as kidney failure, kidney cyst disease, or a history of kidney transplantation play a role [5–10]. A minority of RCC cases are hereditary, while lifestyle factors, namely smoking and obesity elevated the risk, countered by the protective effect of fruit and vegetable consumption [11–12].

A recent survey by the Cancer Genome Atlas Research identified statistically significant gene mutations, namely VHL, PBRM1, SETD2, KDM5C, PTEN, BAP1, mTOR, and TPS3 [13]. The incidence rate of RCC tends to increase with age, especially in more developed countries where 70% of new cases occur (34% in Europe and 19% in North America) [14–15]. The tendency for mortality has been reported to be very high in developed European countries since the 1990s [16–17].

Due to the limited data on kidney cancer characteristics in Indonesia, a comprehensive understanding of patients...
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Kidney Cancer Characteristics at Hasan Sadikin Hospital in Bandung from 2015–2019 is crucial, especially given the limited data on this topic in Indonesia. Therefore, this study aimed to bridge the gap and shed light on the unique aspects of kidney cancer within this regional context.

METHODS

The method applied was a retrospective descriptive design using the medical records book of kidney cancer patients treated at the Department of Urology, Universitas Padjadjaran, Hasan Sadikin Hospital. Data was collected from June 2019 until all records for the sample were compiled based on the inclusion and exclusion criteria selected using both computer and manually. The participants included patients with a diagnosis of kidney cancer, while the accessible population comprised those subjected to kidney surgery or biopsy procedures by the Department of Urology at Hasan Sadikin Hospital from January 1, 2015, to December 31, 2019. This time frame was chosen as it ensured the availability of comprehensive computerized data. The study subjects were selected based on inclusion criteria, which considered all medical record data of kidney cancer patients operated on during the specified period. Meanwhile, exclusion criteria included incomplete data. The collected information comprised independent variables in the form of medical records of kidney cancer patients. Dependent variables were age at diagnosis, gender, socioeconomic characteristics, grading, and histopathological results, reflecting the histological characteristics of kidney cancer tumors. Finally, the collected data were subjected to analysis using descriptive methods, facilitated by Microsoft Excel Software 2019.

RESULTS

Over 4 years, from 2015 to 2019, a comprehensive collection of medical data was conducted, identifying a total of 126 patients who were subjected to surgery for kidney cancer. Table 1 presents the characteristics of patients with kidney cancer from 2015–2019. The information obtained was then computerized using Microsoft Excel Software 2019 edition.

From Table 1, it can be observed that kidney cancer most commonly occurs in males, with a total of 83 patients (65.8%), while females account for 43 patients (34.2%). Among the 126 patients who met the inclusion and exclusion criteria, the age group of 0–10 years dominates in terms of kidney cancer cases, with 32 out of 126 patients (25.4%), followed by the 41–50 age group with 30 patients (23.8%). The age group of 21–30 years had the fewest diagnoses of kidney cancer.

Out of the 126 recorded patients, a total of 78, or > 50%, were diagnosed with RCC (Renal Cell Carcinoma). Figure 1 showed that, when categorized by histopathology, clear cell RCC was more prevalent with 64 cases (50.7%) compared to papillary and Chromophobe with 13 (10.3%) and 1 (0.8%), respectively. In this study, RCC was most commonly identified in the 41–60 age group. However, it was also observed in the 1–40 range. The second most prevalent kidney cancer was Wilm’s tumor, affecting 33 patients (26.1%). Among the 33 cases diagnosed, 30 belonged to the 0–10 age group, and 3 were in the 11–20 range. In the last 4 years (2015–2019), kidney cancers with histopathological features such as UTUC, SCC, malignant lymphoma, adenocarcinoma, leiomyoscarcoma, fibrosarcoma, neuroblastoma, and Rhabdomyosarcoma were rarely encountered.

DISCUSSION

Kidney cancer comprises renal cell carcinoma (RCC) or kidney cell carcinoma, urothelial carcinoma, sarcoma, Wilms tumor, primitive neuroectodermal tumor, carcinoid tumor, lymphoma/leukemia, metastasis, and neoplasm invasion [18]. In this study, the disease was...
more frequently diagnosed in males. This result was consistent with Scelo et al. [19], who revealed that the incidence of kidney cancer is twice as high in males compared to females. It was also observed that age categories of 1–10 and > 40 years were more commonly affected. Patients within this category were predominantly diagnosed with Wilms tumor, while those in the > 40-year range mostly had RCC, including clear cell and papillary subtypes.

Based on data in Indonesia, where kidney cancer numbered 635 between 2013–2017, a male predominance (2:1) was observed, with 45% of cases at an advanced stage. The high incidence in Indonesia was attributed to a higher prevalence of risk factors, such as cigarette smoking and hypertension [4]. In 2017, the United States and China had the most incidences (64,470 and 48,210 cases) [20].

RCC, common neoplasms in adults with associated high mortality rates, originates from the proximal and distal tubules of the kidney. Histologically, it was divided into 3 subtypes, namely clear cell, papillary, and chromophobe [18]. This study showed that > 50% of patients with kidney masses diagnosed through histology had RCC. The clear cell subtype (50.7%) was dominant, compared to papillary (10.3%), with chromophobe being identified in only 1 patient. RCC is predominant among adults aged over 40 years (in the 41 to > 60 years age category), in line with Pascual et al. [21], observation of a peak incidence in the 6th decade, with 80% of cases occurring in the age range of 40–69. The increased incidence in this age group may be related to lifestyle factors, such as obesity, hypertension, smoking, and exposure to carcinogenic agents [18]. However, this study did not conduct further analysis to determine the relationship between RCC and risk factors in patients over 40 years of age, leaving the exact cause unclear.

Despite RCC being common in adult patients, Silberstein et al. [22] showed that between 1988 and 2004, 43 cases were identified in California among children aged < 21 years, with an average age of 15.4 years. In this study, it was discovered in 2 patients aged < 20 years, with the youngest being 10 years old. Additionally, RCC in patients aged < 20 years predominantly presented as a clear cell subtype.

Following RCC, the most common kidney cancer in this study was Wilms tumor which is currently categorized as a nephroblastoma tumor, consisting of nephrogenic rest, nephroblastoma, and cystic partially differentiated nephroblastoma [18]. Furthermore, it frequently occurs in children aged 3 to 5 years. Out of 126 patients, 33 (26.1%) within the age range of 0 to 20, were diagnosed with Wilms tumor. A study by Faranous, spanning 13 years (1990–2003), showed that 175 patients had Wilms tumor, with an average age of

![Figure 1](Image)
Kidney Cancer Characteristics

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No funding sources for this study.

Acknowledgment

The Author(s) wish to thank the Department of Urology, Faculty of Medicine, Dr. Hasan Sadikin Hospital for providing data for this research article.

REFERENCES