Clinical Oncology: Case Reports

Mini Review

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Symptom Patterns and Incidental Diagnosis Rates in a Multicenter Prospective UK Cohort of Patients Presenting with Suspected Renal Cancer: Challenges of Early Renal Cancer Detection

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Abstract

The prevalence and characteristics of symptoms in patients with suspected Renal Cell Carcinoma (RCC) will be described, and their accuracy in leading to an early diagnosis will be examined. Prospective observational cohort research across many centers. Patients presenting with a suspected newly diagnosed RCC are being recruited by eleven UK centers. Patients' reported symptoms were noted and examined. Additionally, thorough clinico-pathological and outcome data were gathered. Type and frequency of reported symptoms, incident diagnostic rate, survival without metastases, and survival with a particular cancer. The fact that related symptoms are generally uncommon and frequently linked to advanced disease limits efforts to increase public awareness of RCC-related symptoms as a strategy to increase early detection rates. The identification of circulating diagnostic biomarkers and the viability of screening methods require more focus.

Keywords: Renal Cancer; Detection; Diagnosis; Symptoms, Renal cell carcinoma.

Introduction

Europe has one of the highest rates of kidney cancer worldwide. Incidence rates have increased 47% in the UK during the past ten years, with 12 000 new cases in 2015. This number is expected to increase to nearly 20,000 new cases year by 2035, making kidney cancer the fourth most frequent disease in males and the ninth most common cancer in women in the UK. Patients with kidney cancer can be difficult to diagnose. The majority (85%) of kidney malignancies are Renal Cell Carcinomas (RCCs), and they typically present slowly developing. The once-classic trio of abdominal discomfort, haematuria, and mass is now acknowledged to be uncommon, and symptoms, if present, might be hazy, non-specific, and slow to manifest. Even though it is well known that getting a diagnosis as soon as possible is crucial for the best results, many individuals still show up with advanced illness. According to data from 2017, 19% of patients with a reported stage at diagnosis in England had stage III cancer and 23% had stage IV disease when they presented. To increase the likelihood of an early diagnosis, campaigns have been launched to educate the general public and medical professionals about kidney cancer [1].

After enrolling in a sizable, modern, multi-institutional UK RCC biobank, we prospectively gathered data on symptoms mentioned by patients at the time of their diagnosis of probable RCC, in contrast to earlier research. In order to better understand the difficulties in early RCC diagnosis, the objectives of this substudy were to identify symptoms reported by patients, quantify the current incidence of incidental diagnosis, and examine how these characteristics relate to patient outcomes. A multicenter prospective observational cohort research was used for the design. Patients were eligible if they had a renal mass on imaging that seemed to be RCC, at any stage, and had never received therapy. Patients were approached and given the go-ahead to take part in the trial before having a biopsy or having their RCC diagnosis verified [2]. The inclusion and exclusion criteria are fully described as previously stated. Detailed clinical and pathological data were gathered. Patients were questioned about the existence and kind of symptoms that led to their diagnosis of probable RCC at the time of study enrollment, and this information was documented on paper Case Report Forms (CRF). It was noted specifically which 'RCC-type' local symptoms (pain, haematuria, abdominal mass, and/or other) there were, as well as which systemic symptoms (weight loss (any), lack of appetite, sweats, fevers, weariness, and/or other) were often associated with the disease. Additionally, a free-text box that asked for a description of how the patient was diagnosed was provided after the investigator was asked to indicate if the diagnosis was incidental in nature [3].

Discussion

Two reviewers (NSV and REB) independently reviewed each case to determine whether the diagnosis would be considered incidental or not (i.e., were any symptoms reported and, if so, would they be regarded as related to the finding of RCC). Where available, they also referred to each individual's electronic case notes. When present, the reported existence of RCC-like symptoms-many of which, like pain, are non-specific-was not necessarily connected to the discovery of RCC and was thus, when appropriate, regarded as incidental. Cases without enough information or in which it was unclear if the diagnosis was incidental were not categorized. Patients who were being looked into for asymptomatic hypertension weren't considered incidental. For patients with localized illness, the time from the date of nephrectomy to the date of distant recurrence was used to compute Metastatic-Free Survival (MFS). Patients without recurrence were censored on the day they were last verified to be recurrence-free (the date of death for patients who passed away without recurrence). The time between the date of nephrectomy and the date of cancer-related mortality was designated as the Cancer-Specific Survival (CSS). Patients who passed away for reasons unrelated to cancer had their dates of death suppressed, while those who were still alive had their final known dates of existence deleted. The log-rank test was performed to determine

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if there was a statistically significant difference between the survival curves, and Kaplan-Meier plots were created to visualize survival [4].

Local RCC-related symptoms: Only 14 (7%) of the 202 patients (33%) who had local RCC-related symptoms described an abdominal mass, while 137 (68%) showed visible haematuria and 126 (62%) felt discomfort. Nearly half of the patients who presented with haematuria had stage III (37.2%) or IV (12.4%) illness, with a median pathological tumor size of 75 mm (range 16–155). The traditional triad of an abdominal mass, haematuria, and local discomfort was only observed in four individuals (0.6%). On preoperative cross-sectional imaging, the median tumor size among these four patients was 105 mm (range 80-154 mm). When variations in histological types were taken into account, there were no discernible changes; however, this comparison was constrained by the limited number of patients with non-clear cell RCC.

Systemic RCC-related symptoms: Fatigue (62%), weight loss (52%), sweating (38%) and lack of appetite (38%) were the most frequently reported systemic symptoms among people with RCC. Fever was 10%, which was not very usual. Compared to patients with just local RCC-related symptoms and those with symptoms unrelated to RCC, patients with systemic symptoms were more likely to have grade 4 malignancies and stage IV illness (p 0.01).

The pathological tumor size was known for 556 individuals (91%) in total. We examined the symptoms in patients who had tumors less than 10 cm. When it came to the 66 patients with tumors smaller than 10 cm, 31 (47%) of them reported having blood in their urine, 33 (50%) had discomfort, and four (6%) had an abdominal mass. Nearly a quarter (16/66; 24%) of these individuals were thought to have had an accidental diagnosis, with 10 (15%) stating that they had no symptoms despite having a massive main tumor. No relationship between BMI and symptom presence or absence was found [5].

Both symptom type (no RCC-type symptoms or unrelated RCC-type symptoms vs. linked RCC-type symptoms) and incidental vs. non-incidental diagnosis were taken into consideration when examining survival results. Patients who were not diagnosed with RCC and those who reported unrelated RCC-type symptoms had considerably better MFS and CSS than those who had related RCC-type symptoms. Additionally, those who had systemic RCC-related symptoms fared worse than those who simply had local RCC symptoms. Overall, patients with an incident RCC diagnosis had better MFS and CSS than those who had a non-incidental diagnosis, however it's crucial to note that these advantages were lost when stage of illness was taken into account.

Patients presenting with benign renal masses: A benign renal tumor was discovered in 54 (7.6%) of the patients in our cohort, consisting of oncocytomas (n=29), angiomyolipomas (n=8), and other lesions (n=17). Of the 52 individuals that could be evaluated, the incidental diagnosis rate was 56%. In 57% and 52%, respectively, of patients with non-incidental diagnoses, haematuria and discomfort were noted. The majority (65%) of participants reported experiencing symptoms, of whom 57% reported only local symptoms, 17% solely systemic symptoms, and 26% both local and systemic symptoms. Most experts agree that the key to improving outcomes for RCC patients is early identification. As is the case with the majority of solid malignancies, the relationship between disease stage and survival is strong. For instance, our cohort's 3-year CSS rates for stage I and stage IV tumors, respectively, were 99% and 47% (data not shown). The public has been urged by NHS campaigns like the "be clear on cancer: blood in your pee" campaign to seek early medical assistance since kidney cancer symptoms including visible haematuria and flank discomfort are well known. However, many individuals continue to have overt or microscopic metastatic illness [6].

Our study emphasizes the major difficulties in diagnosing kidney cancer patients. Nearly a third of the individuals in our sample had no symptoms when they were diagnosed, and 24% of them had stage III or IV illness. Only 23% of patients had visible haematuria, a defining sign of this illness. Less than half (47%) of patients even those with big (>10 cm) tumors reported haematuria as a symptom. Previous studies utilizing data from the UK general practice database revealed that rates of haematuria in patients presenting with kidney cancer might be as low as 18%, which is made worse by the low Positive Predictive Value (PPV) (1%) of this symptom for RCC among those under 60. Given the considerable anticipated increase in incidence, there is increasing interest in researching the possibilities for kidney cancer screening. Recent research has examined the possible cost-effectiveness of doing a single, renal-focused ultrasound examination on asymptomatic 60-year-old males. There are still a lot of questions about who should be screened and with what modality, as well as about potential benefits against risks. There is no doubt that more study should be done in this area. Another top priority for research is the discovery of reliable diagnostic biomarkers that could be found in patients' urine or serum and could be used to quickly rule in or rule out the presence of RCC. Recent encouraging reports have been published in the literature, but further testing and improved performance are still needed [7].

Conclusion

In conclusion, this study highlights the inadequacy of relying solely on symptoms for the early diagnosis of kidney cancer. Our findings imply that raising public and professional awareness will only have a limited effect, and it is still necessary to identify novel biomarkers for this purpose. It is time, in our opinion, to reevaluate the justification for screening and look for ways to include RCC screening into other initiatives, such as low-dose CT scans for lung cancer screenings or ultrasound-based screening for abdominal aortic aneurysms.

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