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THROMBOCYTOPENIA AS A PROGNOSTIC INDICATOR FOR RENAL CELL MALIGNANCY

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ABSTRACT:

BACKGROUND: Various indicative markers have been researched in the last few decades to predict the survival of renal cell malignancy (RENAL CELL CARCINOMA). Thrombo-cytosis has been observed and examined as a indicative factor in a variety of neoplasia.

AIMS & OBJECTIVES: The objective of this research was to see how important thrombo-cytosis was in influencing outcome in study subjects who had localised Renal cell carcinoma and had a radical nephrectomy.

MATERIAL AND METHODS: A total of 200 study subjects were enrolled in the trial. According to the preoperative platelet-count, study subjects were split into two categorys: normal platelet-count (category A) and thrombo-cytosis (category B). A platelet-count of more than 4.5L/mm3 was considered thrombo-cytosis. Between these two categorys, data on stage distribution, grade, tumour size, histological sub-type, haemoglobin level, body Mass Index (BMI), age, sex and tumour survival rate were compared.

RESULTS: The study subjects were on average 58.45 years old, with a 52.35-month follow-up time. Of the 200 study subjects, 38 had a platelet-count of more than 4.5L/mm3 before surgery (category B). Study subjects with thrombo-cytosis were 56.8 7.40 years old on average, compared to 61.25 8.60 years for study subjects with normal platelet-counts (p0.05). Thrombo-cytosis was seen in 14 (10.47%) of 128 individuals with stage pT1-T2 cancer and 24 (30%) of 72 study subjects with stage pT3-T4 cancer. Study subjects who had thrombo-cytosis had a worse outcome than those who did not.

CONCLUSION: In study subjects with Renal cell carcinoma who have a radical nephrectomy, the platelet-count can be a valuable indicative indicator.

KEYWORDS: CEA, Thrombo-cytosis, Renal cell malignancy, Radical nephrectomy.

Introduction:

Renal cell malignancy is the most frequent primary malignancy among all urological neoplasia, accounting for 3% of all adult malignancies and increasing in prevalence over the previous several decades[1,2]. Renal cell carcinoma is radioresistant, chemoresistant to existing chemotherapeutic drugs, and hormonal treatment is ineffective. Despite the fact that surgery is still the most effective treatment for localised or localised advanced Renal cell carcinoma, 20-30% of study subjects develop metastases after surgery. Due to the wide variety of biological behaviour, the majority of study subjects with a new diagnosis of Renal cell carcinoma come with metastatic condition. Determining indicative indicators will aid in the direction of future treatment and follow-up[3]. In Renal cell carcinoma, various indicative factors have been investigated for diagnosis, follow-up, and survival prediction. Pathological results, clinical complaints, and laboratory findings have all been identified as indicative markers after radical nephrectomy. Pathological findings such as tumour proliferation, microvascular invasion, tumour stage, and tumour grade are not widely accepted, whereas clinical features and laboratory parameters such as erythropoietin, haptoglobulin, interleukin-6 (IL-6), carcino-embryogenic antigen (CEA), lipid-associated sialic acid, and acute phase reactant proteins have low predictive value and

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specificity[4,5]. Anemia, low iron storage, inflammation, and primary proliferative conditions can all lead to an increase in platelet-count. Malignant neoplasms are one of the most common causes of thrombo-cytosis among all of these disorders[6]. Thrombo-cytosis has been investigated as a indicative factor in a variety of neoplasia. The significance of platelet-count in Renal cell carcinoma has recently been investigated, and a link between thrombo-cytosis and poor survival in individuals with early-stage or metastatic Renal cell carcinoma has been discovered[7]. The influence of thrombo-cytosis on survival and expectancy in study subjects with renal cell malignancy was studied retrospectively in this research.

AIMS & OBJECTIVES: The objective of this research was to see how important thrombo-cytosis was in influencing outcome in study subjects who had localised Renal cell carcinoma and had a radical nephrectomy.

MATERIAL AND METHODS

The research included 200 individuals who had their Renal cell carcinoma a treated with radical nephrectomy at a tertiary healthcare hospital in Central India. At least one platelet-count more than 4.5L/mm3 was considered thrombo-cytosis. Two categorys of study subjects were formed: 180 study subjects in Category A had platelet-counts of 4.5L/mm3 at the time of nephrectomy, while 44 study subjects in Category B had platelet-counts of > 4.5L/mm3. Study subjects having renal malignancies other than Renal cell carcinoma, metastatic Renal cell carcinoma, or radiotherapy, systemic chemotherapy, or medication that could cause thrombo-cytosis at the time of presentation were excluded from the trial. At least one platelet-count was acquired throughout the preoperative period. Physical examinations, standard hematologic and biochemical analyses, and radiologic investigations, including abdominal computed tomography, chest X-ray, renal Doppler ultrasonography, and, in certain circumstances, magnetic resonance imaging, were performed on all study subjects prior to surgery. The BMI was calculated using the patient's height and weight, and study subjects were classified as obese (BMI 30 or above), overweight (BMI 25–30), or normal (BMI 25 or less). The pathologic staging was done using the TNM classification from 1997. Tumors were graded using the Fuhrman grading system. Regional lymphadenectomy was performed in each patient. For the first two years, all study subjects were assessed every 3–6 months, then every 6 months after that. Physical examination, chest radiography, abdominal and thoracic CT, ultrasound, biochemical and hematologic analyses were all part of the follow-up. Age, sex, BMI, haemoglobin level, pathologic T stage, Fuhrman grade, and survival rates were all compared between the two categorys.

RESULTS

Table 1 shows the clinical and demographic features of the study subjects. The study subjects were on average 58.45 years old (range 26–78), with a mean follow-up length of 52.35 19.3 months (range 5–100). Of the 200 study subjects, 38 had a platelet-count of more than 4.5L/mm3 before surgery (category B). Study subjects with thrombo-cytosis were 56.8 7.40 years old on average, compared to 61.25 8.60 years for study subjects with normal platelet-counts (p0.05). Thrombo-cytosis was seen in 10 (16.33%) of the 60 female study subjects and 28 (20%) of the 140 male study subjects (p0.05). Thrombo-cytosis was seen in 14 (10.47%) of 128 individuals with stage pT1-T2 cancer and 24 (30%) of 72 study subjects with stage pT3-T4 cancer. Study subjects who had thrombo-cytosis had a worse outcome than those who did not. The condition progressed in 22 (57.40%) of the 38 study subjects with thrombo-cytosis. In study subjects with normal platelet-counts, this rate was found to be 21.12% (p 0.05).

Table 1: Demographic features of study subjects

	Category A	Category B	P value
Age	61.25 ± 8.38	56.8 ± 7.40	< 0.05
Sex			
Male	112	28	< 0.05
Female	50	10	
BMI	22.84 ± 2.95	21.95 ± 2.89	< 0.05
Hemoglobin	13.38 ± 2.42	10.93 ± 2.18	< 0.05

Table 2: Clinical features of study subjects

	Category A (n=162)	Category B (n=38)	P value
T stage			
1-2	114	14	< 0.05
3-4	48	24	
Grade			
1	18	02	
2	108	18	>0.05
3	28	14	
4	08	04	

Category A without thrombocytopenia had a survival rate of 126, while category B with thrombo-cytosis had a survival rate of 14. Fisher Tumor size, pathologic T stage, lymph positive, haemoglobin level, and cancer specific survival were all linked to thrombo-cytosis. Histological subtype, grade, gender, and BMI had no effect on thrombo-cytosis. Only the stage of renal cell malignancy, platelet-count, lymph positive, and tumour size were found to be independent predictive indicators of condition-specific survival.

DISCUSSION

Renal cell carcinoma is becoming more common as a result of the accidental identification of tiny tumours and environmental variables. Renal cell carcinoma is still a leading cause of death, with roughly 40% of study subjects dying as the cancer progresses[8,9]. Tumor-related factors (tumour size, grade, and stage), clinical symptoms, and laboratory data have all been identified as important indicative factors. In Renal cell carcinoma, the most important indicative predictor is the pathological stage[10]. Nuclear grade, which is usually represented by the Fuhrman grade, has a significant indicative value, with 5-year survival rates dropping from 64% to 10% in grade 1 and 4 tumours, respectively. In all phases of Renal cell carcinoma, the presence of symptoms, a poor performance status, or severe weight loss has a negative impact on the expectancy[11]. Elevated erythrocyte sedimentation rate, anaemia, hyper-calcemia, and raised alkaline phosphatase are the most powerful laboratory values that have been shown to have a predictive value in retrospective research[12]. Thrombo-cytosis has lately been indicated as a sign of poor expectancy in individuals with a variety of neoplasia. In study subjects with Renal cell carcinoma, the specific mechanism of thrombo-cytosis is uncertain. Several theories have been offered to explain how thrombo-cytosis may be linked to cancer's spreading potential and poor expectancy. The incidence of thrombo-cytosis in individuals with Renal cell carcinoma has been reported to range between 8.2% and 13.5 percent in the majority of prior investigations. This ratio was discovered to be 19 percent in our research. Our findings were superior than those found in the literature. Study subjects in this research had more advanced cases than those in the literature, which could explain the high ratio in our research[13-15]. Various studies have looked at the relationship between platelet-count and survival in Renal cell carcinoma study subjects who received radical nephrectomy or a range of adjuvant therapy after radical nephrectomy. Most researchers have discovered a statistically significant difference in survival rates between study subjects with and without thrombo-cytosis[16]. The death rate from cancer was five times higher in study subjects with thrombo-cytosis, according to the authors. They found that platelet-count was a powerful independent predictive factor in study subjects with localised Renal cell carcinoma based on their findings. In study subjects with Renal cell carcinoma, the relationship between thrombo-cytosis and histologic grade and tumour stage is very essential. Many previous studies looked back at the association between thrombo-cytosis and histologic grade in Renal cell carcinoma study subjects. Malignancy-associated thrombo-cytosis is more common in advanced-stage renal malignancies and is associated with a poor expectancy[17, 18]. Thrombo-cytosis was shown to be more common in study subjects with advanced stage Renal cell carcinoma in the current investigation, and individuals with preoperative thrombo-cytosis had a lower survival rate than those with normal platelet-counts. In study subjects with Renal cell carcinoma who undergo radical nephrectomy, platelet-count may be a valuable indicative indicator.

CONCLUSION:

In conclusion, the current investigation demonstrates a definite link between thrombo-

cytosis and shorter survival in Renal cell carcinoma study subjects. While it's difficult to pinpoint the exact cause of this link, it's plausible that thrombo-cytosis is causally linked to higher tumour cell survival or metastatic potential. Even after controlling for tumour stage, grade, and cell type, thrombo-cytosis remains an important independent indicative predictor. This potent independent indicativeator has clinical usefulness in individual patient counselling and in the selection of individuals for experimental or adjuvant therapy. Platelet-counts must be taken into account when evaluating novel medicines, as study subjects with thrombo-cytosis have a lower chance of survival regardless of the medication under consideration.

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