

Renal Cell Carcinoma with Isolated Thrombocytosis

Shailendra Mohan^a, Harikrishnan^b, S Vasudevan^a

a. Department of Urology, Government Medical College, Trivandrum, Kerala;

b. Department of Medicine, Government Medical College, Trivandrum, Kerala*

ABSTRACT

Published on 28th September 2015

Purpose: 62 year female patient presented with a renal mass and increased platelet count. The need for following up the platelet count after treatment was recognized due to poor prognosis attached with increased platelet count in this condition.

Materials and Methods: The patient characteristics was studied and compared to the known data.

Results: The clinical course of this patient was studied and observed in comparison to the known data.

Conclusions: Platelet count appears to be an independent prognostic factor in renal cell carcinoma. It reflects a cascade of biological events correlated with tumour aggressiveness.

Keywords: Renal cell carcinoma, thrombocytosis, prognostic marker

*See End Note for complete author details

INTRODUCTION

During the last decades numerous prognostic factors have been studied for predicting survival of renal cell carcinoma. It can be clinical symptoms, laboratory finding, tumor related factors, pathological factors. Thrombocytosis has been implicated in many malignancies, but in localised and metastasis renal cell carcinoma, thrombocytosis is considered a negative prognostic factor but the mechanism of thrombocytosis is poorly understood. Recent published literature suggests that thrombocytosis could prove to be a simple, accurate and inexpensive prognostic marker.

CASE REPORT

A 62 yrs female patient with incidentally detected renal mass was referred from the local hospital. She had history of hypertension, hypothyroidism and sleep disorder on treatment. On Examination- Afebrile, normal generalised examination, Vitals stable, Palpation- soft, nontender, no mass felt, bilateral renal angle free. Laboratory reports were as follows: Hb-13.7, TC-11,220, P-72, L27, E1, ESR-35, PLC-5.37, Liver function and renal function was normal. Ultrasound Abdomen and X-Ray Chest-Normal.

CECT Abdomen (5/5/15)- Lt kidney 7.4x4.9x5.6 cm heterogeneous mass lesion in midpole enhancing solid/cystic lesion abutting the anterior perinephric fat, multiple foci of calcification present, no invasion of renal vein or IVC.

She had undergone left radical nephrectomy with an uneventful post operative period. Preoperatively hydroxyl urea was given to reduce platelet count to physiological levels.

At the time of discharge the platelet count was 3.86 lakh.

Histopathological examination revealed renal cell carcinoma - clear cell type, Fuhrman nuclear grade II, perirenal fat, renal sinus vessels and resected margin of ureter free of tumor.

DISCUSSION

Thrombocytosis may be related to tumor aggressiveness, platelet are involved in angiogenesis and also provide adherence for endothelial wall and also source of vasoendothelial growth factor. Thrombospondin, a platelet secreted protein has also been implicated in metastasis tumor spread. Renal cell carcinoma also release cytokines which stimulate the production of megakaryocytes, IL-6 with its pro-inflammatory abilities is able to stimulate haematopoiesis and proliferation of megakaryocyte progenitors.

Several studies have shown thrombocytosis to be associated with a poor prognosis in localised and metastasis renal cell carcinoma. Bensusan et al, in their study found that patients with platelet count >450000 positively correlated with worsening T stage, grade, size, lymph node status and distant metastasis in 804

Corresponding Author:

Dr. S Vasudevan, MS, MCh, Additional Professor, Department of Urology, Government Medical College, Trivandrum, Kerala - 695011, India. Email: periamana@gmail.com. Phone: 9447124246

patients with renal cell carcinoma. Increased platelet count was associated with worse five year survival on both univariate and multivariate analysis and this impact on prognosis.

Symbas et al, in their study noted that it associated with a poor outcome and shorter life expectancy in patients with metastasis renal cell carcinoma, their data showed that who received adjuvant therapy and had a normal platelet count, had a 64% increase in life expectancy in comparison to those with thrombocytosis. O'Keefe et al also concluded thrombocytosis as an independent prognostic factor in their study, there was 5.75 fold increase in cancer specific death rate in those with thrombocytosis compared to those with normal platelet. Gogus et al reported that preoperative thrombocytosis was highlighted to be a significant predictor in determining prognosis in patients with localised renal cell carcinoma. Cho et al showed, thrombocytosis significantly correlated with tumor size and metastasis. It was a predictor of recurrence free survival on univariate but not multivariate analysis. Patel et al reported an increase in platelet counts >20% following radical nephrectomy could reliably predict recurrence and cancer free survival.

The need for prognostication in metastatic renal cell carcinoma has gained immense significance with targeted therapy and accurate prognostication allowing individualization of therapy. All these studies reported in the literature highlight and validate the use of thrombocytosis as a prognostic indicator in renal cell carcinoma. However what level of platelet count should be used as prognosticate the disease lack consensus.

Renal cell carcinoma is a complex disease with unpredictable natural history, prognostic model such as developed by Memorial Sloan-Kettering Cancer Center serves as a important source for patients risk assessment and counselling which include haemoglobin less than lower limit of normal, LDH, corrected calcium greater than normal, Karnofsky performance status <80% and time from diagnosis to treatment of yrs. Heng model also includes platelet as a prognostic factor. The international metastasis Renal cell carcinoma database consortium prognostic model include platelet and neutrophil count above the upper limit of normal as independent adverse factors. There is no doubt that a combination of factors will be most reliable in prognostication, the platelet count alone is a simple investigation that give the clinician a indicator of the gravity of the disease and further prospective studies could help better establish its exact role in renal cell carcinoma patients.

CONCLUSION

Thrombocytosis correlated significantly with advancing stage, grade of disease and more rapid disease progression in renal cell carcinoma.

END NOTE

Author Information

1. Dr. Shailendra Mohan, Senior Resident, Department of Urology, Government Medical College, Trivandrum, Kerala
2. Dr. Harikrishnan, Associate Professor, Department of Medicine, Government Medical College, Trivandrum, Kerala
3. Dr. S Vasudevan, MS, MCh, Additional Professor, Department of Urology, Government Medical College, Trivandrum, Kerala

Conflict of Interest: None declared

Cite this article as:

Mohan S, Hari Krishnan, Vasudevan S. Renal Cell Carcinoma with Isolated Thrombocytosis. Kerala Medical Journal. 2015 Sep 7;8(3):23-4.

REFERENCES

1. Campbell S, Lane B. Malignant renal tumours. Campbell-Walsh Urol. 10thed. Philadelphia: Elsevier Saunders; 2012. p. 1413-74
2. Patel A, Bhavan R, Somani B, Nabi G. Correlation of percentage changes in platelet counts with recurrence rate following radical nephrectomy. Indian J Urol. 2010;26(2):183-7.
3. Heng DYC, Xie W, Regan MM, Harshman LC, Bjarnason GA, Vaishampayan UN, et al. External validation and comparison with other models of the International Metastatic Renal-Cell Carcinoma Database Consortium prognostic model: a population-based study. Lancet Oncol. 2013 Feb;14(2):141-8.
4. Bensalah K, Leray E, Fergelot P, Rioux-Leclercq N, Tostain J, Guillé F, et al. Prognostic value of thrombocytosis in renal cell carcinoma. J Urol. 2006 Mar;175(3 Pt 1):859-63.
5. Symbas NP, Townsend MF, El-Galley R, Keane TE, Graham SD, Petros JA. Poor prognosis associated with thrombocytosis in patients with renal cell carcinoma. BJU Int. 2000 Aug;86(3):203-7.
6. Cho DS, Kim SJ, Lee SH, Ahn HS, Kim YS, Kim SI. Prognostic significance of preoperative C-reactive protein elevation and thrombocytosis in patients with non-metastatic renal cell carcinoma. Korean J Urol. 2011 Feb; 52(2):104-9.
7. O'Keefe SC, Marshall FF, Issa MM, Harmon MP, Petros JA. Thrombocytosis is associated with a significant increase in the cancer specific death rate after radical nephrectomy. J Urol. 2002 Oct; 168(4 Pt 1):1378-80.
8. Fuhrman SA, Lasky LC, Limas C. Prognostic significance of morphologic parameters in renal cell carcinoma. Am J Surg Pathol. 1982 Oct; 6(7):655-63.
9. Hollen CW, Henthorn J, Koziol JA, Burstein SA. Elevated serum interleukin-6 levels in patients with reactive thrombocytosis. Br J Haematol. 1991 Oct; 79(2):286-90.
10. Jacobsen J, Grankvist K, Rasmuson T, Ljungberg B. Prognostic importance of serum vascular endothelial growth factor in relation to platelet and leukocyte counts in human renal cell carcinoma. Eur J Cancer Prev. 2002 Jun; 11(3):245-52.