

# Pattern of male genitourinary cancer

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## Abstract

**Background:** The genitourinary cancer accounts for the largest group of male cancers even more than the head and neck cancers. Cancer data from Rajasthan are limited. **Aim:** To determine the pattern of male genitourinary cancers in Jaipur region. **Materials and Methods:** Study has been conducted at N.I.M.S Medical College Jaipur for the year 2011-2015. Only histologically or cytologically proven cases have been included in the study. **Results:** Total cases studied - 34924. Total numbers of male genito-urinary cancer cases were 329 which form 18.81% of all cases in males. Prostate forms 50.46%, urinary bladder forms 24.925, testis forms 10.33%, kidney forms 7.29% and penis forms 6.99%. **Conclusion:** Male genitourinary tract cancer forms the largest over all groups. Prostate and urinary bladder show amongst the highest figures. Intensive case control studies are required to find out the cause of this high frequency.

**Keywords:** Male genitourinary cancer, cancer profile, frequency, malignancy.

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## INTRODUCTION

Jaipur is the capital of Rajasthan and is situated in northwest India. Jaipur drains practically the whole of eastern Rajasthan and neighbouring states, as it is a tertiary referral center with all super specialties and very economical health care facilities, which cater to a population of approximately 20,451,881. Hence, the data obtained here are expected to be fairly representative of the overall incidence and pattern in this region. The female population is 48% as compared to 52% of males. The population growth rate is +28.44%. The overall literacy rate is 38.55%, with male literacy rate being 54.99% and female, 20.44%. The staple diet is bajra, jowar, maize and wheat. About 60.23% of the population resides in rural areas and agriculture is the mainstay of their livelihood. Sandstone, soapstone, silica sand, iron ore, china clay and limestone are the important minerals found here. The main industries are skin hide, blacksmithing, oil crushing, limestone, structural stone

goods, textile printing, dyeing and finishing. The main addictions are tobacco in various forms, betel and nut, pan masala, alcohol, opium and bhang. Cancer is responsible for high morbidity and mortality hence it is important to study the geographic distribution of specific cancer lesions. Variable cancer pattern in different geographical regions may be dependent on genetic, environmental, dietary, and social and other factors. It is important to know the differential disease pattern in a population subgroup. The most common genitourinary cancer in Jaipur is the prostate cancer. Unlike other genitourinary malignancies a high rate of asymptomatic prostate cancer is seen in aging men. Since the availability of prostate specific antigen in early 1990's there have been considerable changes in the epidemiology of prostate cancer. There is high incidence of mortality noted due to prostate cancer in India as well as in other parts of the world. Even in united state, a developed country with highly advanced diagnostic tools and latest treatment options, in 2007 diagnosed cases of prostate cancer were 218,890 and out of which approximately 27050 men would die<sup>1</sup>. High mortality can be due to as this cancer is symptomless in earlier stage and the presence of symptoms due to prostate cancer means locally advanced or metastatic disease. Even in our study we found that the genitourinary cancer with highest incidence is prostate cancer. As prostate cancer is symptomless earlier detection of this cancer is our concern at present for which periodic p.s.a and pre testing is required for the man with enlarge prostate, a family

history of prostate cancer, elevated p.s.a or urologic symptoms. In large screening trials prostate specific antigen testing nearly doubles the detection rate possible with dre alone; more than 90% of cancers detected by combined screening are clinically organ-confined and 70% pathologically confined<sup>2,3</sup>. Surgical technique used to treat prostate cancer is radical prostatectomy. External beam radiation, thus guided prostate brachytherapy are other treating modalities. Another genitourinary cancer which is two times more common in male than female is bladder cancer. With increasing age the incidence of bladder cancer increases and peaks above 50 years. According to the recent studies there has been 20% increase in no. Of cases in last 20 years. Genetically most associated tumor suppressor gene associated with an altered biology of the disease include p53, p21, p27 and retinoblastoma gene (rb)<sup>4</sup>. Chemical exposure and tobacco use are one of the most important risk factors. Specific cell cycle regulatory protein such as cdc2, ki-67 and cyclin d1 have also been implicated.<sup>4, 5, 6, 7, 8</sup> fold increased risk of developing bladder cancer is noted with tobacco users and even ex-smokers have a twofold increased risk.<sup>9</sup> In 80%-90% of bladder cancer patients presenting symptom is haematuria. Still there is no single molecular marker that is capable of predicting the tumor with a high degree of accuracy. bladder cancer are mostly the transitional cell tumors with cytology being the gold standard for noninvasive screening of urine in cancer bladder. Transurethral resection of bladder tumors, nd yag laser and immediate cystectomy, immunotherapy and bca are the treatment options. Kidney tumor that is renal cell carcinoma is known as the internists tumour due to its protean chemical manifestation. These tumors are more common among urban than rural residents. Mostly the presenting age is 50 – 70 years. But it's also seen in children of 6 months of age. Renal carcinoma was first described by Konig in 1826. In 1984 a term hypernephroid tumors was introduced by birch-hirschfeld. Since then the conceptually incorrect term hypernephroma has frequently been applied to renal tumors<sup>[10, 11]</sup>. Incidence of renal cell carcinoma accounts for 2%-3% of all adult malignant neoplasms. This is the most lethal of all urologic cancers. Male to female predominance is of 3:2. Majority of cases of renal cell carcinoma are believed to be sporadic, only 2% to 3% are familial. Most common generally accepted environmental risk factor for rcc is tobacco exposure. In Jaipur also main addiction are tobacco which are used in various forms, betel and nut, pan masala, alcohol, opium and bhang. Printing industry also poses risk for rcc. Jaipur has several textile printing industry and their workers are at high risk. Radical nephrectomy is performed for a locally invasive tumor. For metastatic adjuvant therapy is being

given. Cancer penis is the one which is being ignored by the patients unless it reaches a considerable size. Tumor presentation is widely variable. According to our study we found squamous cell carcinoma as a penile cancer. Incidence of penile cancer is being declined in many countries due to patients having started paying more attention to hygiene<sup>12</sup>. Penile cancer has been strongly associated with phimosis and poor local hygiene. It is very difficult to collect precise and authentic data of malignancies. Data available are mostly of cancer institute's, hospital population based cancer registry and medical institutions. Aim of this study is to determine the pattern of male genitourinary cancer in Jaipur region.

## MATERIALS AND METHODS

The study has been conducted by the cancer registry at N.I.M.S Medical college Jaipur for the year 2011--2015. The data has been collected from medical college hospitals, private clinics and labs in Jaipur. Only histologically and cytological proven cases have been included in the study. All patients pre-operatively underwent physical examinations, ultrasonography, blood and urine routine required investigations, x-rays, bone scans, biopsies, ct scans and M.R.I. We see that in India genitourinary cancer forms 11% of all cancer in male. According to our study in Jaipur region male genitourinary cancer forms the largest group with incidence of 18.81%. Head and neck is the 2nd largest group (18.34%), git is at number three (15.55%), lymphoma and leukemia is at number four with 6.92%.

## RESULTS

A total of 34924 cases were studied and 2898 cases were detected to have cancer, out of which total no. Of male cancer was 1749 and 329 patients were detected to be the patient suffering from male genitourinary cancers which forms 18.81% of all cases in males. According to the site wise distribution prostate forms 50.46%, urinary bladder forms 24.925, testis forms 10.33%, kidney forms 7.29% and penis forms 6.99% as shown in the table no. 1. (figure 1) if we see age wise then people of 60 – 70 years of age were more prone to prostate cancer, with age of 50 – 60 years were more prone to urinary bladder and kidney related cancers, with age of 40-50 years people were seen to have cancer penis and people of age between 30-40 years are seen to suffer more with testicular carcinoma (table no 2). In prostate cancer adenocarcinoma is more common with percentage of 94.33% and squamous cell cancer is least common with 1.9% of incidence as shown in figure 2 (table no. 3). If we talk about testicular tumor then the incidence of yolk sac tumors is 88%, seminoma 41.2%, embryonal cell carcinoma is 29.4%, teratoma is 11.8% and non-germ cell tumors is 2.94% as stated in

table no.4 and figure 3. Cancer penis patients were having squamous cell carcinoma and patients with cancer urinary bladder suffered mainly from transitional cell cancer (89%).in kidney tumors we saw adenocarcinoma with highest incidence of 62.5%,wilms tumor 16.6%,squamous cell 12.5% and transitional cell 8.33% (table no. 5.) (figure 4).

**Table 1:** Site wise distribution of male genitourinary cancer

Site of cancer	Percentage
Prostate	50.46%
Urinary bladder	24.92%
Kidney	7.29%
Penis	6.99%

**Table 2:** Age wise distribution of male genitourinary cancer

Prostate	b/w 60-70 years
Urinary bladder	b/w 50-60 years
Testis	b/w 30-40 years
Kidney	b/w 50-60 years
Penis	b/w 40-50 years

Histopathological wise distribution of male genitourinary cancer

**Table 3: Prostate**

Histological types of cancer	Percentage
Adenocarcinoma	94.33 %
Transitional cell carcinoma	3.116 %
Squamous cell carcinoma	1.9 %

**Table 4: Testis**

Germ Cell Tumors	Non-Germ Cell Tumors
seminoma(41.2%) embryonal cell carcinoma(29.4%) Teratoma(11.8%) yolk sac tumor(88%)	lymphoma, rabdomyosarcoma and nhl---(2.94%)

**Table 5: kidney**

Histological types of cancer	Percentage
Adenocarcinoma	62.5%
Wilms tumor	16.6%
Squamous cell	12.5%
Transitional cell carcinoma	8.33%

Penis squamous cell carcinoma (all) Urinary bladder transitional cell carcinoma (89%) rest (squamous cell, adenocarcinoma, highly undifferentiated small cell ca, malignant cell carcinoma, interstitial carcinoma) If we compare the frequency of Jaipur with India we see that while in Jaipur male genitourinary cancer form 18.81% of all cancers, while for India this frequency is 11%.

## DISCUSSION

There are several limitations in describing patterns of cancers in individual centers, especially in the context of

geographical distribution. The leading sites of cancers in a given place are dependent on a number of factors. The popularity of a particular department or treating physician, the accessibility of a particular diagnostic or treatment facility, affordability of patients and so on. In some centers, one could be dealing with small number of cancers. Thus, either the order of leading sites or fluctuation of the same between the years provides little meaning. Still, the patterns observed in most cancer centers that function as referral institutions for care of cancer patients do reflect the predominant cancers in the region. Further, they give an indication of the magnitude and burden of cancer in specific institution or region. Limited data are available on cancer from Rajasthan. Only two studies, one from western Rajasthan and the other from eastern Rajasthan have been published by sharma *et al.* In 1992 and 1996<sup>[13,14]</sup>. Recently we see that if we compare with various cities of India frequency of cancer prostate in Jaipur region is very high. Prostate alone forms 9.5% of all cancers in males .this high frequency is also seen in Ludhiana (11.25%) and also in Jammu (8.4%) while in most other cities the frequency is below 5%. Cancer of testis forms (1.94%) of all cancers in male and this almost same when compared with other cities of India. Cancer penis forms (1.32%) of all cancers in male and this is also almost same in comparison to the cities of India. The frequency of urinary bladder is also high in Jaipur region .cancer urinary bladder forms 4.69% of all cancers in males. Only in Ludhiana a higher frequency (7.5%) is seen in all other cities the frequency of cancer urinary bladder is near about 2%. For carcinoma kidney the frequency is same with other cities of India (1.37%). If we compare the present study with our done in 1996, almost a similar picture is seen.

## CONCLUSION

Male genitourinary cancer forms the largest overall group. Prostate and urinary bladder cancer show amongst the highest figure reported in the Jaipur. Intensive case control studies are required to find the cause of this high frequency.

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