



Colorectal cancer in Mauritius: facts and figures - A ten year retrospective study

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ABSTRACT

Among the various types of cancers in Mauritius, colorectal cancer has evolved as 1st in male and 3rd in female in 2008 (National Cancer Action Plan 2010 MOH & QL, Mauritius). Colorectal cancer is one of the leading causes of death worldwide. A retrospective study of 10 years (2001-2010) has been carried out using the National Cancer Registry (NCR) data. In our study, age wise distribution showed that the highest incidence rate was seen in age group of 55-74. Male to female ratio was found to be 1.2:1 ($p=0.028$). Topographic distribution of lesion showed that maximum cases were seen in colon. Among the registered addresses, urban had higher incidence. This study highlights that NCR should be a strong part of future planning for national cancer prevention and control programs. The need to introduce screening like FOBT (Fecal Occult Blood Test) or colonoscopy, for colorectal cancer in people more than 50 years for early diagnosis and control of the disease in Mauritius is advocated.

KEY WORDS: *Colorectal cancer (CRC); Facts and Figures; Mauritius; Epidemiology; Screening, National Cancer Registry (NCR)*

INTRODUCTION

Cancer is a leading cause of death worldwide, despite the fact that the majority of cancer cases are preventable or treatable. Globally, CRC is the third most commonly diagnosed cancer in males and the second in females. Rates are substantially higher in males than in females. The incidence of colorectal cancer (CRC) in 2008 was estimated at 1,235,108 newly diagnosed cases worldwide (third most commonly diagnosed cancer, 9.8% of all newly diagnosed cancers apart from skin cancers). In Mauritius, colorectal cancer has evolved as first in male population and third in females in 2008.¹ It has been noticed that one-third of all cancers is preventable, one-third is treatable and the remaining one-third is at present incurable. Colorectal cancers are described as preventable cancers.² The objectives of this study are to measure the magnitude of colorectal cancer and understand its trend in Mauritius.

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MATERIALS AND METHODS

A retrospective study was done by analyzing data from the National Cancer Registry from the year 2001 to 2010 in Mauritius. A total of 1460 cases of CRC during the decade were registered in the NCR from year 2001- 2010. All cases of CRC registered during the decade were included in the study. No sampling was done. The data were analyzed with SPSS software program. The incidence rates were analyzed by age, sex, ethnicity, region, morphology and topography. ASR was calculated by applying world standard population. To understand ethnic distribution, the percentage of incidence rate in each group was correlated with the percentage of population of that group, to get the incidence rate in particular group, in addition to incidence rate in total population.

RESULTS

Figure 1 shows the summary characteristics for the colorectal cancer patients. CRC Incidence rose persistently attaining highest value of 14.8 (Male 7.3, Female 7.5) in 2010 and average incidence of 11.7 per 100,000. More than

half the cases were males (54%), giving a male:female ratio of 1.2:1.

Figure 2 shows age-standardized incidence rates (ASR) for the year 2010. The ASR shows highest incidence in the age group of 55-74 years with ASR 19.3-19.5 followed by 50-54 years (ASR 17.8), 75-79 years (ASR 15.2) and 45-49 years (ASR 10.8).

Figure 3 shows region wise incidence rates of CRC. One third of the cases i.e. 554 have been recorded without specification of addresses in registration forms. Among two third cases who disclosed the addresses, 26.44% belonged to rural areas with incidence rate of 5.3 and 35.62% to urban areas with incidence rate of 9.9.

Figure 4 shows the ethnic distribution with the highest incidence in Hindus (5.4) due to size of population i.e. 50% and minimum (0.4) in Sino-Mauritian (3%) population. The incidence was 1.7 among Muslims who represent 17% of the population.

Figure 5 shows topographic distribution of cases. The colon was the commonest site with incidence rate (IR) of 6.7, followed by rectum with 4.7 IR, and least common in recto-sigmoid with 0.4 IR.

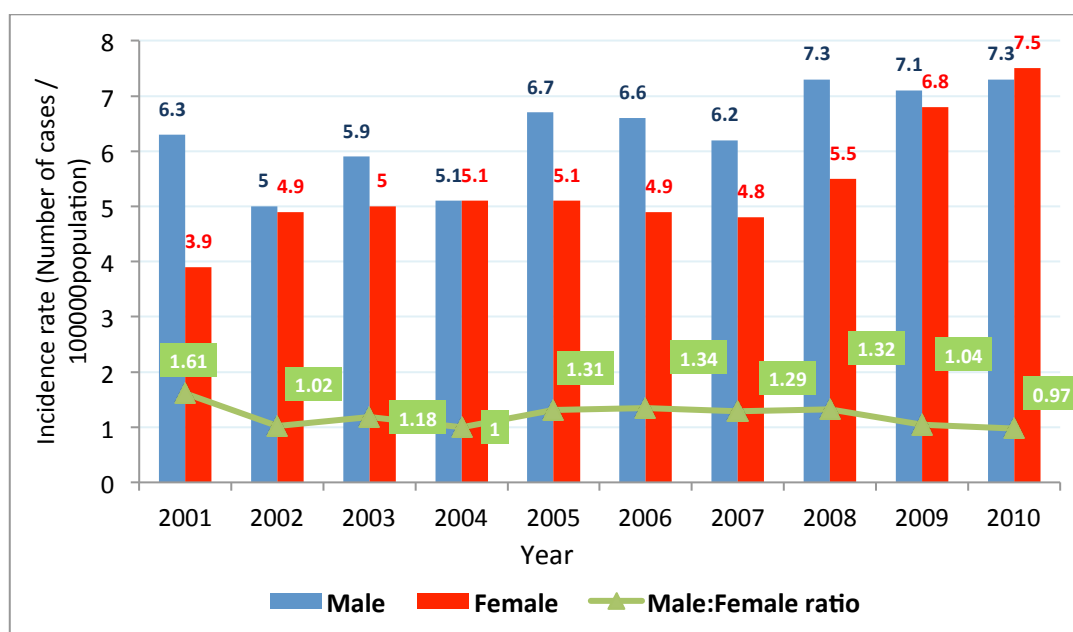


Figure 1: Yearly gender wise incidence rates per 100,000 population. ©AMBR

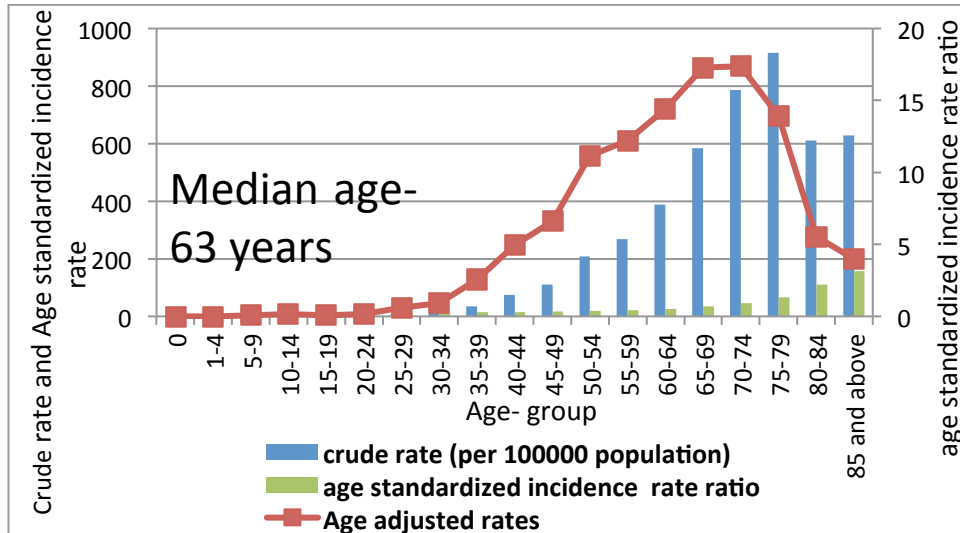


Figure 2: Age standardized incidence rates (ASR) for year 2010. ©AMBR

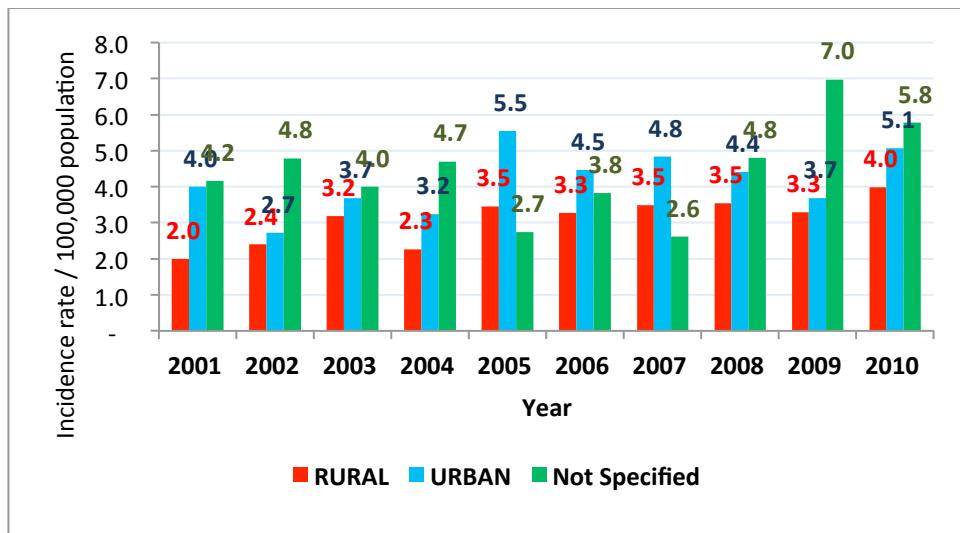


Figure 3: Region wise incidence rates of CRC. ©AMBR

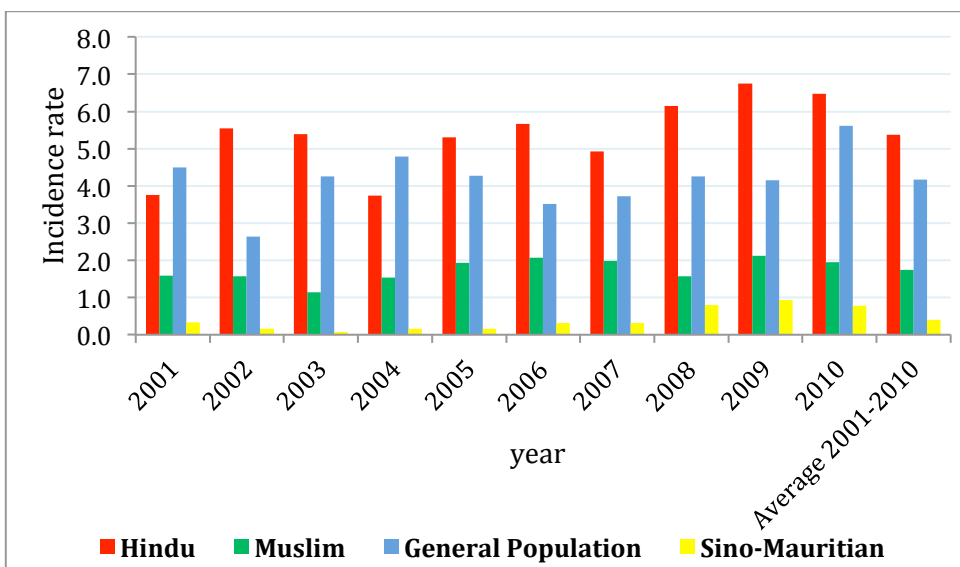


Figure 4: Ethnic distribution of CRC. ©AMBR

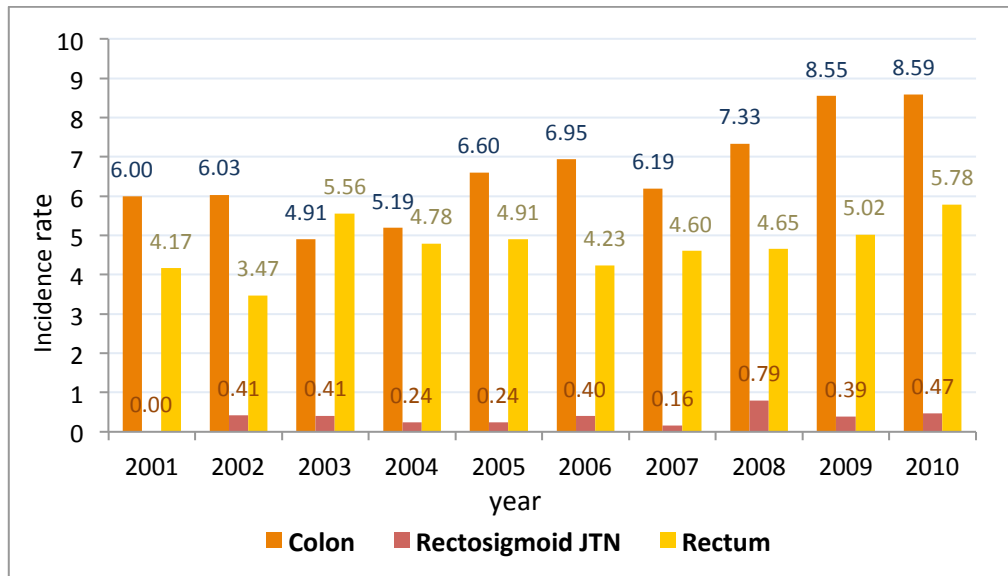


Figure 5: Topographic distribution of CRC. ©AMBR

DISCUSSION

This study sheds some light on the epidemiologic, clinical and geographic distribution of colorectal cancer in the population. Mauritius is an island with population of 1.2 million and one generally expects uniform lifestyle and health outcomes in such a small population with uniform infrastructure. Mauritius does not have natives of its own. The population comprises migrants from Asia, Africa, China and Europe and its composition is interestingly unique with racial, cultural and socio-economic variations. Therefore the life style is influenced by a mix of cultures and origins of migrants and local adoption of culture after migration. The analysis of data reflects this complex interaction and its influence on variations in health outcome, which needs to be further, studied and understood.

This study confirms the alarming high and increasing incidence rate of colorectal cancer in Mauritius. The age distribution confirms colorectal cancer as a disease of advancing age. The present study shows that colorectal cancer is highest in age group of 55-74 years (median age - 63 years) with male predominance (M:F ratio - 1.2:1). The Globocan study shows the similar trends in developed countries, which are reflected in developing

countries showing more than 90% cases above the age 50 years (median age - 69 years) with overall sex ratio of 1.4:1³. Findings of gender analysis corroborate with the previous studies that male population has relatively higher incidence than female.⁴⁻⁵ The higher incidence in males may be due to gender-related differences in exposure to hormones and risk factors.⁶

Ethnic and racial differences in colorectal cancer (CRC), as well as studies on migrants, suggest that environmental factors play a major part in the etiology of the disease, therefore CRC is widely believed to be an 'environmental disease', influenced by ill-defined cultural, social, and lifestyle practices.⁴ Ethnic and region wise distributions of this study highlight high incidence in urban population with high incidence in Hindus that can be attributed to its predominant population size. The geographical variation in CRC incidence across the world can be attributed to differences in diet, particularly the consumption of red and processed meat, fiber and alcohol, as well as bodyweight and physical activity.⁷⁻¹⁰ Countries that have had a rapid 'westernization' of diet, such as Japan, have seen a rapid increase in the incidence of colorectal cancer.¹¹

Anatomic subsite distribution of CRC cases shows the colon as a commonest site. Various studies suggest right side shift in anatomical distribution with increase in proximal colon cancers.¹²⁻¹⁴ However Omranipour et al¹⁵ and Gomez et al¹⁶ did not find any shift towards the proximal colon. Tumors located from the cecum to the distal transverse colon were classified as right side and those occurring from the splenic flexure to the descending colon as left-sided.

Recommendations

From the literature, it is apparent that many facets of colorectal cancer are becoming increasingly understood. The findings of this study strongly support the need of many more studies in Mauritius to understand the underlying causes and social aspects of epidemiological analysis, which can guide in framing future cancer prevention and control action plan.

NCR is an important, valid and authentic tool to assess the burden of cancer in Mauritius. It should be consulted for the future planning of National Cancer Prevention and Control Program. Therefore strengthening this unit is highly recommended. Analyzing the region-wise distribution of colorectal cancer in Mauritius has brought to attention that about one third of the patients did not mention the address in spite of the fact, that Mauritius is a relatively small and well-connected country. This connotes a stigmatization associated with cancer and specifically more so with colorectal cancer, therefore, under-reporting or late reporting of cancer cannot be excluded. This may also be due to incomplete entries in NCR. The disease stages are also not mentioned in NCR and therefore have not been included in the study.

So far CRC is not included in national cancer control and prevention program (NCPCP) for screening in mass population. Various screening options for colorectal cancer like FOBT and regular biannual colonoscopy are available. The study highlights the scope and need of

introducing screening for colorectal cancer in people past the age of 50 years for early diagnosis and control of the disease in Mauritius.

CONCLUSION

Colorectal cancer is on rise in Mauritius like most countries, especially in economic transitional countries and among migrants, who are adopting rapid westernizing life style practices. CRC is believed to be a cancer of advancing age and theoretically avoidable environmental disease. It attributes to a wide range of ill-defined cultural and social lifestyle practices. This study reaffirms that the move from theoretically avoidable causes to implementation of preventive strategies can be achieved by *in depth studies in local population to identify and understand their association to the disease, strengthening of NCR, inclusion of CRC in NCPCP and screening by FOBT and colonoscopy.*

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