Low Prevalence of Colorectal Cancer in South Asians than White Population in UK: Probable Factors

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ABSTRACT

Colorectal cancer is common in White population in UK, while rare among South Asians living in UK. The main aim of this study was to find out probable reasons for very low prevalence of colorectal cancer among South Asians living in UK than White population. PubMed was searched by using key words and 2,153 articles were found and reviewed to find out related information. Websites of WHO, Office of National Statistics UK, and Cancer Research UK were also searched for relevant information. Diet and lifestyle are important factors for low colorectal prevalence among South Asians in UK. Vegetable and fruit use, physical activity, alcohol abstention or low usage, less tobacco use, and fecal material time in large intestine are important factors for low colorectal cancer development. It was concluded that South Asians have very low colorectal cancer prevalence in the UK than White population, which may be related to their diet, dietary habit, and lifestyle.


INTRODUCTION

Cancer has become the leading cause of death worldwide. As cancer deaths are rising, it is expected that new cancer cases, which were about 14 million in 2012, will rise by 70 per cent in the next 20 years. In 2015, 8.8 million people had cancer deaths worldwide and colorectal cancer caused 774,000 deaths. Lifestyle factor has an important role and cancer can be prevented by change in lifestyle.¹

Latest report of Office of the National Statistics (ONS) UK shows that colorectal cancer was the third most common cancer in England for both males and females. In 2015, there were 34,729 colorectal cases recorded for both men and women in England.² There were 15,903 deaths from bowel cancer in the UK in 2014. Fibre consumption is very important as it protects against bowel cancer. Lifestyle factor is significant as 54% of reported bowel cancer cases each year in the UK have link to the lifestyle.³

There is difference between lifestyles of South Asians and White population in the UK. So, there is low colorectal cancer rate among South Asians in the UK, while White population has very high rate. Lifestyle has very important role in the growth of colorectal cancer. Diet is a significant factor for development of colorectal cancer.⁴ The diet is different in South Asians in the UK or living in Europe and White population so it may have the link of low prevalence.

METHODOLOGY

Search was made at PubMed, with limit of humans and English, and by using key words, a total of 2,153 research articles were retrieved. All articles were reviewed for probable causes of colorectal low prevalence among South Asians.

Websites of WHO, Office of National Statistics UK, and Cancer Research UK were also searched to find out related information about minimal colorectal cancer prevalence among South Asians living in UK.

All research articles were reviewed, and then probable causes were categorised.

RESULTS

The probable causes were found for low prevalence of colorectal cancer among South Asians than White population.

The risk of growth of colorectal cancer increased with the advancement in age. After 50 years of age, men are at more risk of development of colorectal cancer than women. On average, 90% of colorectal cancer cases occur in people over the age of 50. This shows age is an important factor.

People who are first degree relatives of colorectal cancer patients have an increased risk of developing this disease. Hence, genetic factor is also important and needs to be explored. About 5-10% colorectal cancer patients have inherited genetic abnormality that causes cancer. In colorectal cancer patients, the family history has an importance. The persons having family history of colorectal cancer are more likely to develop adenomas which may have malignant transformation.⁵
Those persons with one or more adenomatous polyps in rectum have an increased risk for colorectal cancer as transformation to malignancy is common. Persons having chronic inflammatory bowel disease of significant duration, 9-10 years or more, have also an increased risk for the development of colorectal cancer.

Regular physical activity is required for healthy life and there is a need to realise the importance of it. In different studies, it has been found that regular physical activity is associated with low risk of colorectal cancer. Physical activity is an important factor to prevent colon cancer and other different chronic conditions related to colon.6

Diet has also important role in incidence of colorectal cancer. There is a need to investigate in detail as there is little evidence, due to less research to support the use of dietary fiber supplements for the low risk of development of colorectal neoplasia.7 Fruit and vegetable use may be associated with a lower risk of distal colon cancer development; and it needs more research.8 Risk of distal colon cancer is increased by consumption of red meat,9 or processed meat,10,11 and there is a need to explore meat and its fibers.

Many years ago, in Scandinavia certain animals’ meat were not eaten; and later when it was allowed, the disease emerged. So, it has a link with the development of cancer, so detailed research studies would be able to reach some conclusions to save people.

Studies link smoking with different disease developments and colorectal cancer, too. Cigarette smoking is associated with a higher risk of colorectal cancer development in men,12 women and previous smokers.13 The cigarette filters and brands, due to different tobacco use, have important risk factors for the disease, but overall risk is higher.

There is also association of alcohol intake and onset of colorectal cancer. In persons with at least one colorectal adenoma and excessive alcohol consumption the risk of colorectal cancer development increases.14,15 The most important factor for colon cancer growth is liquor consumption quantity.16 In a study, it was found that five years in the past, alcohol consumption had association with moderately increase in risk of colorectal cancer growth;17 but colorectal cancer development risk was reduced/minimised when wine was included in the alcohol intake.18

There is an association of overweight and obesity with colorectal cancer. Obesity has a direct statistically significance and independent relationship with colorectal cancer development,19,20 but varies by sex and cancer site of colon.21 There is also association of obesity with short interval development of colorectal adenomas.22 In women at pre-menopausal stage, it is found that obesity associates with two-fold increase risk of colorectal cancer.23 Obesity is also alarming in young persons for development of diseases. In young obese persons, the risk of colonic adenoma is increased.24

South Asians (people with origin from Bangladesh, India and Pakistan) have almost same habit, lifestyle; and take usually similar diet. Those who are above 50 years of age and living in the UK have very simple life due to their cultural bindings and other factors. They work very hard there, and take simple food, abstain from taking alcohol, and use very less tobacco. They use tea and coffee and take tea with milk in their own countries.

They use butter and milk as they use in their own countries. This results in gain in body weight and increases risk of cardiovascular and other diseases. They meet their friends and attend social functions, thus they (both male and female) are very active in their lifestyle. They usually take food for which they developed taste in childhood in their native countries. They use whole meal, green vegetables, white meat, fish, beans, nuts etc. They walk for different reasons and usually take food with which they feel comfortable.

DISCUSSION

Lifestyle and diet are related to low prevalence of colorectal cancer. South Asians’ diet and lifestyle is different from White population in the UK and other European countries, thus these are probable factors of low colorectal prevalence among South Asians.

The habits and lifestyle of South Asians have effect on development or risk of colorectal cancer. They are very fond of taking tea. Irrespective of gender, intake of tea is not associated with risk of colorectal cancer.25 Some persons take many cups black tea in a day. After taking food, they also take green tea. A study suggests that regular consumption of green tea, may reduce colorectal cancer in women.26 They also use coffee as they have been living in UK since long; while coffee consumption is not associated with the risk of colorectal cancer development,27 and also has no proven role to lower the risk of colorectal cancer.28 So other factors are important.

They walk and move due to social contacts, meeting friends or other family binding reasons. Time spent in walking is associated with a lower risk of colon cancer.29 They eat food usually cooked at high temperature with spices and oil. Cooking food at high temperature may lead to the formation of minute quantities of many potent carcinogens that are comparable to those found in cigarette smoke.30 The diet has butter and oil, which results in obesity and overweight. There is an inverse association between physical activity and risk for colon cancer; while obesity, particularly abdominal deposition of fat, is associated with an increase risk of colorectal cancer.31
Higher Body Mass Index (BMI) is associated with an increase risk of colorectal cancer development, too. Increase in waist circumference is a stronger predictor of colon cancer risk than BMI; and central obesity is responsible for an increase risk of cancer colon development. In South Asians, waist circumference increase is due to dietary habits. There are studies which reveal that obesity and weight gain are higher risks for colorectal cancer. All these studies indicate that South Asians should have also risks of colorectal cancer, but they have a very low prevalence.

South Asian persons are at risk of colorectal cancer development after 50 years of age. They usually do not take alcohol or wine due to their social, cultural and family relations bindings. So, they are protected from this factor. They usually smoke less cigarettes. They usually use tobacco in huqqah, a water pipe.

Surveys found that South Asians smoke less cigarettes than other populations. They usually live in joint family system and may be passive smokers, but passive smoke exposure is not associated with colorectal cancer. In UK and European countries, South Asians usually do not take spirit; and if some drink spirit, which is seldom, in close social gatherings only. After 50 years of age, they are usually afraid of their life-after-death, so spirit use is minimal. There is more than two-fold increase risk of significant neoplasia among persons who drink spirit and beer. In a study, it was found that the risk of polyps increase three times in nonsmokers, alcohol drinkers, and two times in non-alcoholic smokers while those who take both have 12 times more risk than non-smokers and non-alcoholics.

South Asians use vegetables and fruits to keep them healthy. Fruits and vegetables are not strongly associated with colon cancer risk, but may be associated with a lower risk of distal colon cancer development. There are studies which reveal that there is no association of fruits and vegetables with colorectal cancer, but other studies conclude their relationship. Increased risk of colorectal cancer was observed with very low intake of fruits and vegetables, and green leafy vegetables were found associated with low risk of colorectal cancer development.

In the UK, the South Asians use fish (especially people from Bangladesh origin), and white and red meat to keep them fit. Persons having origin from Bangladesh or other South Asians having origin from areas close to sea or river, use fish by choice. There is risk of colorectal cancer with consumption of red meat. A study showed that red meat does not increase colorectal cancer, but high intake of fish may decrease the risk, especially of distal colon cancer growth.

In South Asians, low risk of colon cancer development may be related to reduced microbial activity in the bowel and low levels of tumor-promoting secondary bile acids. South Asians have low prevalence of colorectal cancer. One possible thing for low rate of colon cancer in South Asians may, therefore, be that South Asians' diet is associated with low level of exposure to secondary bile acids in the lumen. Alternatively, the extent of degradation of biliary steroids may reflect the overall metabolic activity of the luminal flora and its ability to form potentially toxic agents or high intakes of fruit, vegetable fiber and f.i-carotene may exert protective effects independently of bacterial metabolism.

South Asians eat bread prepared at home, chapatti, and use usually whole meal Atta (whole grain ground form). When they leave their countries, they develop taste of that bread/chapati and new generation, born here, some may not like that form of bread but usually they eat it. More fiber intake has no significant role in minimising the risk of colorectal cancer development, whereas whole-grain consumption is associated with a reduced risk from colorectal cancer growth.

Women in South Asian communities are apparently obese and overweight but they use whole grain in food. A population-based cohort of 60,000 women revealed that high consumption of whole grains is associated with a lower risk of colon cancer development and whole grains may decrease the risk of colon cancer among women.

They use food having good source of vitamin B6 like nuts, wheat germ, liver, chicken, fish etc. They take roughage food with mastication. High vitamin B6 is beneficial. Higher alcohol intake and low vitamin B6 consumption is associated with an increased risk of colorectal cancer. Proper mastication of food, roughage, cellulose and vegetable fiber, and short-chain fatty acids of milk and fermented milk products in the diet appear to be protective from development of colorectal cancer.

Women in South Asian families, especially from Pakistan and India villages origin, are fond of taking milk and dairy products rich in high fat, and men also use same kind of food usually due to their own beliefs and developed taste. High intakes of high-fat dairy food and CLA may reduce the risk of colorectal cancer development, and higher consumption of milk and calcium is associated with a lower risk of colorectal cancer, too. It has not been suggested that the significant effects of dietary fat intake has its role in colorectal cancer incidence. South Asians’ dietary habits may protect them from developing colorectal cancer as compared to White population in the UK.

South Asians like more children and women give birth to more children, so they usually use contraceptives in birth spacing only. This is also related to low risk of colorectal cancer in women. Women also use post-menopausal hormones also. Biological evidence also supports observational studies which suggest that there is reduced risk of colorectal cancer among women who use post-menopausal hormones, and apparently colorectal cancer risk decreases on stoppage of menopausal hormones therapy, too.
term use of hormone estrogen plus progesterin is associated with a decrease risk of development of colorectal cancer.55

A study shows that there was decreased risk of colorectal cancer among women who use post-menopausal hormone for short duration than those who use replacement therapy for five years or longer duration.56 Physical activity is important among women after menopause and lifetime recreational physical activity may protect against colon cancer among post-menopausal women who have never used hormone therapy, and in women with declining rate of hormonal therapy. This activity shows one possible means for reducing women colon cancer risk.57 Dietary patterns that reflect a Western way of life are associated with a higher risk of colorectal tumors. The identified four dietary patterns have an important role in development of colorectal cancer, which include healthy diet (vegetable, fruit, yogurt, sea products, and olive oil) Western foods (potatoes, pizzas and pies, sandwiches, sweets, cakes, cheese, cereal products, processed margarine and butter); alcohol drinking especially spirit (alcoholic beverages); and red meat usage.58 South Asians usually take healthy diet which includes green vegetable, fruit, yogurt, sea products, and olive oil, whole meal etc., so they have an apparent low prevalence of colorectal cancer. Several risk factors are commonly found in Western diets, which White population use, such as high concentrations of fat and animal protein as well as low amount of fiber, fruits and vegetables. Many experimental studies have found a counteractive effect of fiber on neoplasia induction, especially in relation to fermentable fiber (wheat bran and cellulose). So, decreasing the risk of colorectal cancers, there is need to take dietary measures such as increased plant food intake; the consumption of whole grains, green vegetables and fruits, reduce red meat intake and processed cheese.59 Lifestyle has an important role in the development of different diseases and early recovery after illness including prognosis. Lifestyle modification includes proper healthy diet such as rich in vegetables and very less intake of red meat and fat, regular physical activity, maintaining an appropriate body weight, avoiding the use of tobacco and alcohol; may lead to reduce colorectal cancer development risk.60 Most of the South Asians have adopted this type of lifestyle in the UK and in European countries.

CONCLUSION

South Asians have very low colorectal cancer prevalence in the UK than White population, which may be related to their diet, dietary habit, and lifestyle. Research related to the diet is suggested to explore probable causes, which may be helpful in minimising colorectal cancer prevalence among White population in UK and Europe.

REFERENCES
