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A Medical Review

COLORECTAL CANCER IN VIETNAM

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1. Introduction

1.1. Colorectal cancer is an ancient disease

Species, since ancient, were suffered from cancer; however, only mens inside organs of lung, liver, stomach, and others were at seriously exposed to risk factors and developed cancer. In contrast, animals were also suffered from cancer with a very rare occurrence in inside organs, (National Cancer Institute, 1980; Wells et al., 1938). By these evidences, we focused on examination of modification risk factors that might be existed in local environments at community and household levels. Cancer in human for all sites was gradually increasing in both incidence and fatal cases. Etiology and causality of cancer is almost unclear and its findings sometime are agreement in one study population but not in the other populations, remaining question is that scientists observation was wrong or cancer risk factors are flexible and modification existing in our society? In spite of estimated 80% of cancer cases in general and 98% of colorectal cancer in particular caused by environmental factors (Doll & Peto, 1981), there are unclear that what are they in the defined populations?

1.2. Viet Nam country and facilities of cancer research

1.2.1. Improving life expectancy

Viet Nams culture in general and lifestyle related cancer was mixed between Chinese and France because the country was occupied by China for a near 1,000

Key words: colorectal cancers, risk factors, prevention.

years and France for a near 100 years in the past. Because colorectal cancer is reported to be related to Western dietary habits, therefore, it is favorable condition to observe disease distribution and its etiology in Viet Nam. Viet Nam is a Southeast Asia country. It is bordered by China to the North, Laos to the Northwest, Cambodia to the Southwest, and the East Sea to the East. With a population of about 86 million in 2008, Viet Nam is the 13th most populous country in the world. The Socialist Republic of Viet Nam has placed significant emphasis on economic development particularly since the introduction of the Doi moi (or economic reform) in 1986. As a consequence, Vietnam has achieved much in a short timeframe. For example, the percentage of the population living on less than a dollar a day has fallen from 58% to 29% over a 10 year period to 2002 and so too, have the health indices improved with life expectancy for men now 71 years and for women 75 years (GSO, 2006; Ministry of Health, 2009; United Nations, 2009). These progressing economics and urbanizations have making changes in lifestyles, dietary habits, increasing pollutions in living and working environments that might promote colorectal cancer occurrence.

1.2.2. Developing descriptive cancer epidemiology

Regarding source of data of colorectal cancer, for many countries, civil registration and vital statistics systems are considered the gold-standard for mortality statistics as data on deaths recorded as a legal requirement tend to be complete (United Nations, 1999). Civil registration was initiated in Viet Nam in 1956 and despite the 50- years of collecting mortality data, only limited information was published (Rao et al., 2010). However, a recent study assessed the civil registration and vital statistics system in Viet Nam and reported the system had significant limitations including a lack of completeness particularly for early neonatal deaths, deaths of temporary residents and/or migrants (Rao et al., 2010). Beyond Viet Nams civil registration and vital statistics system, a national mortality reporting system has also been introduced. Under the auspices of the Ministry of Health (MOH), the A6 mortality reporting system relies on commune-level health officials providing basic demographic data and information on the cause of death, which is recorded in an official book referred to as the A6. The data from the A6 is collated by the district-level health service and the information is then forwarded to the provincial and central-level governments. The community plays a significant role in maintaining the current mortality reporting system and in turn, is able to actively use the information gained to plan commune-level health services. Based on MOHs national mortality reporting system, cancer mortality from all sites as well as from colorectal was collected and analyzed (Ngoan, 2006a; Ngoan, 2006b; Ngoan et al., 2007a; Ngoan et al., 2007b). Verbal autopsy designed by WHO was applied in community to determined all causes of death included cancer (Huong et al., 2003). When causes of death from cancer determined by the verbal autopsy tool was the reference group, sensitive and

completeness of MOHs national mortality reporting system was about 80% and 94%, respectively (Tra & Dung, 2003). These findings have suggested that accuracy and completeness of cancer mortality is feasible and that was sources of data of colorectal cancer presented in the present study. The A6 system has well established in all communes throughout Viet Nam with the recording of deaths of commune residents easily applied by all commune health workers; the same workers who analyze and use the information for planning services at the commune level. In Viet Nam, 7,081 (65.1%) Medical Doctors were working at commune health stations (CHS), (Ministry of Health, 1998; Ministry of Health, 2007; Ministry of Health, 2009). Health workers are trained and working at CHS and they will contribute to improve mortality data quality and registration completeness gradually in the near future. Cancer epidemiology and population based cancer registration was introduced by IARC during 1980s, focused on two biggest Hanoi and Ho Chi Minh cities represented the North and South of Viet Nam, respectively. Cancer incidence during 1988-1997 in the Hanoi city and 1995-1998 in the Ho Chi Minh city was published by IACR (Anh et al., 1997; Anh et al., 1993; Quoc et al., 1998). Data of cancer incidence of colorectal cancer produced by these two population based cancer registries was consisted with database of cancer mortality extracted from MOHs national mortality reporting system that was also used to present in the present study.

1.2.3 Developing analytical cancer epidemiology

Cancer was observed to be the second most common cause of death at nationwide during 2005-2006 (About 16%) (Ngoan, 2006a; Ngoan, 2006b; Ngoan et al., 2007b), after vascular heart diseases (About 25%). Colorectal cancer (ICD-10: C18-20) was occurred at nationwide in Viet Nam, the aim of present study was to generate a comprehensive picture of the fatal disease in the eight regions of Viet Nam, to facilitate epidemiological studies in our country in promoting primary prevention. For data of risk factors of colorectal cancer, we conducted a molecular epidemiological case-control study on the incident cases of the disease from 2002 to 2011, hospital based control cases. The study was designed by the leading experts of cancer epidemiologist from Japan and Viet Nam. The designed protocol was approved by scientific and ethic committees of the MONBUKAGAKUSHO (Japan) and Ministry of Science and Technology (Viet Nam). Initial results and findings were published elf where (Ngoan et al., 2008a; Ngoan et al., 2008b; Ngoan et al., 2009).

2. Characteristics of colorectal cancer cases in Viet Nam

2.1. The occurrence of colorectal cancer at nationwide

During two years 2005-2006, we reported 4,646 cases of fatal colorectal cancer among all 93,719 cancer death cases. It was responsible for about 5% of

all cancer cases. Colorectal cancer was distributed in all 671 districts within 63 provinces/cities of Viet Nam. Among 4,646 colorectal cases, it was 2,450 males (52.7%). Average age at death was 62 in males and 66 in females (Ngoan et al., 2007b). In 2002, estimated number of death from colorectal cancer was 1,730 cases in male and 2,401 cases in female, giving a total was 4,131 cases (IARC, 2002). Average reported number per year was 2,323 cases in 2005-2006 that was only 56% of estimated number of 4,131 cases.

2.2. Colorectal cancer caused a premature death

These characteristics have suggested that we should take into an account in near future to do epidemiological studies:

⋆ Colorectal cancer caused a number of thousand death cases in Viet Nam, it was an important public health problem in our country;

⋆ Causality and risk factors of colorectal cancer were presented at nationwide because the cancer was observed in all 671 districts within all 63 provinces/cities. Therefore, we should observe and examine etiology and causality at household and community level in identifying and controlling risk factors.

⋆ Male to female ratio was 1.1; it means that both male and female was exposed to its risk factors almost equally;

⋆ Registration of colorectal cancer at nationwide might be under reported for about 40% of total cases. In the near future, data of cancer mortality registration will be improved and it will be used for cancer control and prevention in our country.

⋆ Due to referred data of cancer from China to estimate cancer incidence and mortality of all sites as well as of colorectal cancer, it might be overestimated colorectal cancer in 2002 for Viet Nam (IARC, 2002).

⋆ Colorectal cancer caused a premature death for average of 7.3 year because life expectancy of Vietnamese was estimated to be 71.3 in 2006, male and female combined (Ministry of Health, 2007).

3. Colorectal cancer incidence and mortality

3.1. Childhood colorectal cancer

Colorectal cancer among childhood, 1-18 year-old, we found 52 cases (1.13% of 4,646 cases) (Ngoan et al., 2007b). Children 1-18 year-old was, normally not yet working, therefore they not exposed to occupational carcinogens at work. They also rarely exposed to tobacco smoking and alcohol beverages because Vietnamese has started smoking after 18 when they were started working and had an income (Jenkins et al., 1997). They also not exposed to dioxins contaminated in herbicides during the Viet Nam War. What were risk factors induced colorectal cancer during 1990s in Viet Nam among children? These facts and figures have suggested to study on risk factors of colorectal cancer in the near future.

Region	Male			Female		
	Cases	Crude	ASR	Cases	Crude	ASR
Red delta river	68	5.5	6.9	75	5.8	5.2
North east	20	3.1	4.4	34	5.0	5.0
North west	7	2.8	4.7	9	3.4	5.0
North central coast	29	3.3	4.0	34	3.7	3.0
South central coast	18	5.4	7.7	13	3.7	4.1
Central highlands	9	3.1	6.0	7	2.3	3.7
North east south	34	4.0	6.3	24	2.7	3.4
Mekong delta river	83	7.5	11.3	78	6.8	7.8

Table 1 Colorectal cancer mortality rate per 100,000 (ASR) by sex and regions

3.2. Incidence of colorectal cancer Two population-based cancer registrations have been running in the two biggest city of Hanoi and Ho Chi Minh City in the North and South, respectively. Covered population was about 13 million (15% of country population) in 2008 (Anh et al., 1997; Ministry of Health, 2009; Quoc et al., 1998). Age-standardized incidence rates per 100,000 (ASR) of colorectal cancer was 10.5 in male and 6.5 in female, 1993-1997, in the Hanoi city (North) and 12.4 in male and 9.0 in female, 1995-1998 in the Ho Chi Minh city (South) (Anh et al., 1997; Quoc et al., 1998). Incidence rate of colorectal cancer in Viet Nam was one fifth of that in the United State (ASR 52.6 in male and 37.0 in female, respectively) (Ries et al., 2000). Data of cancer incidence rate in Viet Nam might be underestimated by 15-25%, because death certificate was not been existed and contributed to cancer registration. A number of cancer patients was not visited and admitted into hospitals because only 12% of Vietnamese having health insurance during 1990s (Ministry of Health, 1998).

3.3. Mortality from colorectal cancer

In eight regions, ASR colorectal cancer mortality rates were from 4.0 to 11.3 per 100,000 in male and from 3.0 to 7.8 per 100,000 in female (Table 1). The highest mortality rates were seen in both male (11.3 per 100,000) and female (7.8 per 100,000) in the region of Mekong Delta River in the South Viet Nam.

The age specific rate per 100,000 were sharply increased from the age group 50-59 with a peak at 80+ as high as 346.6 and 275.3 per 100,000 in males and females at the region of Mekong Delta River in the South Viet Nam,

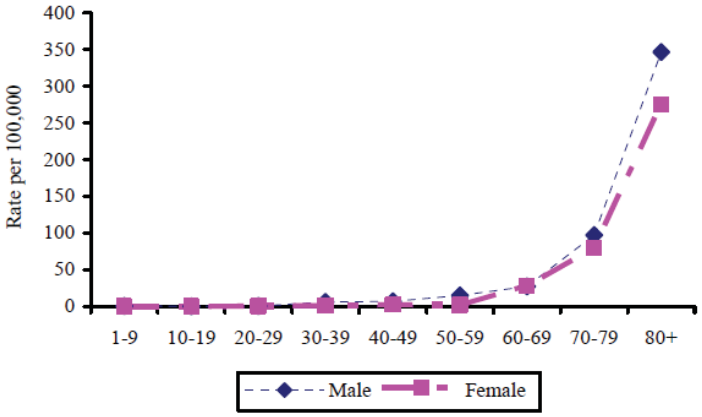

Figure 1: Age specific mortality rate per 100,000 in males and females

respectively, (Figure 1). It supported to the earlier statement of average age at death of 62 in males and 66 in females. ASR colorectal cancer mortality rates per 100,000 in male ranked from 4.0 to 11.3 and that was lower than that in the developed countries as high as 17.7 (Figure 2). At nationwide, it was estimated to be 5.6 per 100,000 (ASR) or it was one third when compared to that of the developed countries (IARC, 2002).

ASR colorectal cancer mortality rates per 100,000 in female ranked from 3.0 to 7.8 and that was lower than that in the developed countries as high as 12.3 (Figure 3). At nationwide, it was estimated to be 5.2 per 100,000 (ASR) or it was nearly half when compared to that of the developed countries (IARC, 2002).

3.4. Survival of colorectal cancer Regarding colorectal cancer survival, there was a lack of data of surveillance for cases from incidence to mortality to estimate crude and relative survival in Viet Nam. Two population-based cancer registries have been running in Viet Nam, one in the Ha Noi city established in 1988 and the other in the Ho Chi Minh city established in 1990 in producing data of cancer incidence (Anh et al., 1997; Quoc et al., 1998). These institutions collected data from medical records only and there was a lack of followed-up data, therefore, data of incidence rates might be underestimated and it was not available survival data by now. We analyzed survival for fatal colorectal cancer cases only: one-year survival was 33.5% and 5-year survival was 4.3%, male and female combined (Ngoan et al., 2007a).

These data of incidence, mortality and survival (Among fatal cases only) of colorectal cancer cases in Viet Nam have suggested that:

⋆ Risk factors induced colorectal cancer might slightly related to sexs lifestyles,

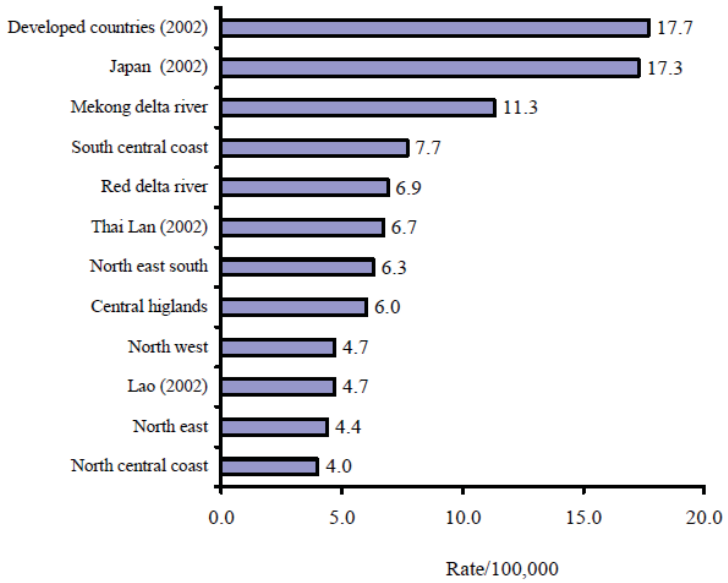

Figure 2 ASR mortality rates per 100,000 by regions in male

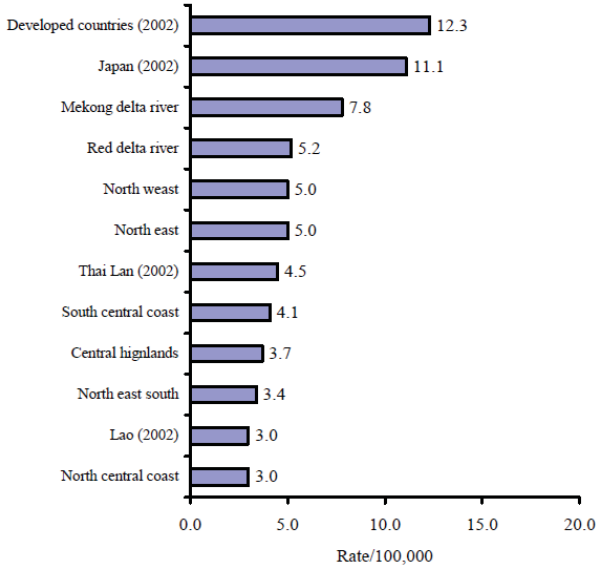

Figure 3: ASR mortality rates per 100,000 by regions in female

we should examine risk factors that affect both male and female;

⋆ Trend of colorectal cancer in Viet Nam will be increased following a shift from traditional diets to Western dietary habits and it is one third of ASR rates of that in the developed countries during 2005-06;

⋆ Prevention of colorectal cancer should be a high priority because the diseases were estimated to be caused by 98% of environment risk factors (Doll & Peto, 1981).

4. Risk factors and benefit factors of colorectal cancer in Viet Nam

4.1. Performing case-control study on stomach and colorectal cancers

Case-control study was performed for colorectal cancers admitted to Hanoi Cancer Hospital, Viet Duc Surgery Hospital and Bach Mai General Hospital located in the Hanoi city. One incident case matched to one incident control with sex and age ±5. Cases and controls were interviewed to collect data in using the designed structured demographic and lifestyle questionnaire and semi-quantitative-food-frequency questionnaire. Blood samples were collected early morning after waked up on the day of operated on. (Ngoan et al., 2008b; Ngoan et al., 2009). Most patients were come from provinces near the Hanoi city within in the Red Delta River. They will be represented Vietnamese in the North.

4.2. Host factors related to colorectal cancer

4.2.1. Blood ABO group and risk of colorectal cancer

Distribution of blood ABO group in Vietnamese is 45.00%, 21.20%, 28.30%, and 5.50% for types O, A, B, and AB, respectively (Duc, 2007). In our study population, it is 42.97%, 23.67%, 27.95%, and 5.42% for types O, A, B, and AB, respectively (Ngoan et al.). Proportion of type A plus AB is 26.70% and of type O plus B is 73.30% in Vietnamese. In our study population, it is 29.10% and 70.90%, respectively. Distribution of blood ABO group in our entire study population is similarly to that in Vietnamese. Blood ABO group was observed to be associated with cancer risk, that is, blood A was seen to increase risk of stomach cancer in a number of studies (Nomura, 1996). Blood A, AB and B has also promoted risk of pancreatic cancer (Wolpin et al., 2009). In our study, blood type A plus AB was seen to promote risk of colorectal cancer, OR = 1.58, 95% CI=1.05-2.38, $P < 0.05$, (Ngoan et al.) (Table 2). The mechanism of developing colorectal cancer in patients with blood types A and AB is unknown. When we separated colon and rectal cancer, estimated risk was significantly increased for colon cancer OR=3.36, 95% CI=1.91-5.92, $P < 0.05$ but not significantly increased for rectal cancer OR=0.84, 95% CI=0.54-1.32, $P > 0.05$.

Blood type	Control	Case	OR	95% CI		P
O & B	187	150	1.00	*Reference*		
A & AB	58	73	1.58	1.05	2.38	0.027

Table 2: Blood ABO group and risk of colorectal cancer

CYP1A1 genotypes	Control	Case	OR	95% CI		P
AA	57	32	1.00	*Reference*		
AG & GG	226	237	1.86	1.16	2.98	0.010

Table 3 CYP1A1 genotypes and risk of colorectal cancer

4.2.2. CYP1A1 genotypes risk of colorectal cancer

Function of CYP1A1 is recognized to be activated major chemical carcinogens induced cancer in general and colorectal cancer in particular, in human. We found that CYP1A1 (A/G and G/G genotypes) promoted risk of colorectal cancer, OR = 1.86, 95% CI=1.16-2.98, P <0.05, (Ngoan et al.) (Table 3).

4.2.3. Family and personal history of health and risk of colorectal cancer

When parent and closed relative suffered from cancer, the patient has a significant increase risk of colorectal cancer, OR=3.00, 95% CI=1.29-6.99 and OR=3.63, 95% CI=1.31-10.01, respectively. Patient with a history of colorectal pain and inflammation has a significant increase risk of cancer, OR=3.68, 95% CI=2.01-6.75. Regarding Body Mass Index, three levels were categorized, such as < 18.5; 18.5-<25 and 25-<30. Patient with Body Mass Index 25-<30 has a significant increase risk of cancer, OR=2.09, 95% CI=0.79-5.51, P for trend < 0.05, (Ngoan et al.), (Table 4). The Vietnamese household traditionally followed the extended multi-generational pattern and they shared living environments as well as similarly dietary habits. By this way, all family members might be exposed to risk of cancer in general and to risk of colorectal cancer in particular. Regarding body mass index, the mechanism of developing colorectal cancer among group of obesity was unknown.

4.3. Environmental factors related to colorectal cancer

4.3.1. Drinking habit of alcohol and/or beer and risk of colorectal cancer

Man drinks alcohol and beer, since ancient to date, and they are humans foods at worldwide (Kass, 1994). When excluded poisoning of heavy intake of alcohol, we considered alcohol and beer to be a promoter in developing cancer in human. A solubility of chemicals included chemical carcinogens contaminated

Factors	Control	Case	OR	95% CI		P
Parent suffered from cancer						
No	303	290	1.00	*Reference*		
Yes	8	21	3.00	1.29	6.99	0.011
Relative suffered from cancer						
No	305	294	1.00	*Reference*		
Yes	5	17	3.63	1.31	10.01	0.013
History of colorectal pain and inflammation						
No	286	255	1.00	*Reference*		
Yes	15	48	3.68	2.01	6.75	0.000
Body Mass Index - BMI *(Rectal cancer only)*						
< 18.5	32	17	1.00	*Reference*		
18.5-<25	108	119	2.03	.12	3.33	0.005
25-<30	7	8	2.09	.79	5.51	0.135
P for trend = 0.013						

Table 4: Family and personal history of health and risk of colorectal cancer

in our foods in alcohol is better than that in water environments. For example, Aflatoxin B is soluble in ethanol but limited water solubility (Bioaustralis, 2011). There is sufficient evidence for the carcinogenicity of alcohol beverages in human but inadequate evidence for the carcinogenicity of ethanol and alcoholic beverages in experimental animals (IARC, 1988). Based on these facts and figures, we hypothesized that alcohol and beer is being a promoter in developing cancer in human. For drinking habit of alcohol and/or beer, three levels were categorized, such as not drinking, some drinking per week, and daily drinking. Daily drinking alcohol and/or beer was significantly increased risk of colorectal cancer, OR=1.91, 95% CI=0.98-3.72, P for trend < 0.05, (Ngoan et al.), Table 5.

4.3.2. Dietary habit of heated foods and risk of colorectal cancer

Referred to earlier statements regarding cancer occurrence in species, only mans inside organs of lung, liver, stomach, and others were at seriously exposed to risk factors and developed cancer. In contrast, animals were also suffered from cancer with a very rare occurrence in inside organs, (National Cancer Institute, 1980; Wells et al., 1938). Animals intake natural foods without cooking and heating but man intake both natural foods and cooking and heating foods (Masako, 1984; Stephanie et al., 2001). Man also used at least 10,000 chemical additives and they are contaminants in our foods (Adams, 1970). Heat-generated carcinogens due to cooking temperature that contam-

Alcohol and/or beer	Control	Case	OR	95% CI		P
Not drinking	175	145	1.00	*Reference*		
Some drinking per week	29	33	1.61	.90	2.87	0.110
Daily drinking	21	27	1.91	.98	3.72	0.058
P for trend = 0.030						

Table 5 Drinking habits and risk of colorectal cancer

inated our foods were reported in a number of previous studies. Acrylamide was detected in heated foodstuffs that was evaluated by IARC to be probably carcinogenic to human (Group 2A) (IARC, 1994).

Concentration of Acrylamide was 50 g/kg in hamburgers fried on fry-pan temperature 240oC while it was zero in the control (Tareke et al., 2002). By these evidences, we hypothesized that intake of heated foods might be increased risk of colorectal cancer in our study population. Three food items were categorized to be heated food items because they were heated in cooking temperature at 165oC or higher during processing (Masako, 1984; Stephanie et al., 2001). Concentration of heat-generated carcinogens (Acrylamide) was generated and significantly increased when the fried temperature increased from 100oC to 240oC (Tareke et al., 2002). Daily and weekly intake of barbecued meats, bread, and biscuits was significantly increased risk of colorectal cancer, OR=1,70, 95% CI=1.09-2.63; OR=2.15, 95% CI=1.36-3.40; OR=2.05, 95% CI=1.03-4.07, respectively (Ngoan et al.), Table 6.

4.3.3. Cigarette smoking and risk of colorectal cancer

The heating and burning of tobacco products leads to the formation of main stream smoke and side stream smoke. Main stream smoke from cigarettes and cigars is generated during puff-drawing in the burning cone and hot zones; it travels through the tobacco column and exits from the mouthpiece. Side stream smoke is formed in between puff-drawing and is emitted freely from the smouldering tobacco product into the ambient air. A variety of chemical and physical processes occur in the oxygen-deficient, hydrogen-rich environment of the burning cone at temperature up to 950oC. Tobacco smoke contains more than 3,800 constituents and many of them are chemical carcinogens to human (IARC, 1985). Tobacco smoking was reported to be responsible for about 25-35% of all cancer in human (Doll & Peto, 1981). In our study, daily smoking 11 cigarettes or more was increased risk of colorectal cancer, OR=2.08, 95% CI=0.62-6.91, but not significantly (Ngoan et al.), Table 7.

Both burning of tobacco and heating of foods leads to the formation of chemical carcinogens or it will be called by the other word Heat-generated car-

Heated food items	Control	Case	OR	95% CI		P
Barbecued meats						
Cooked meats done to a turn	220	194	1.00	Reference		
Meats being burnt, changed color and smoke during heating	43	62	1,70	1,09	2,63	0,019
Bread						
Not intake or rare	207	179	1.00	Reference		
Some intake per month	66	67	1,17	0,79	1,74	0,432
Daily or weekly intake	35	65	2,15	1,36	3,40	0,001
P for Trend = 0,002						
Biscuits						
Not intake or rare	231	206	1.00	Reference		
Some intake per month	68	81	1,34	0,92	1,95	0,125
Daily or weekly intake	14	25	2,05	1,03	4,07	0,040
P for Trend = 0,016						

Table 6: Dietary habits and risk of colorectal cancer

Number of cigarette per day	Control	Case	OR	95% CI		P
Non smoker	151	140	1.00	*Reference*		
1-10	22	15	.82	.37	1.82	0.618
11+	5	9	2.08	.62	6.91	0.233

Table 7: Number of cigarette per day and of colorectal cancer

Refrigerator available at home	Control	Case	OR	95% CI		P
Yes	123	145	1.00	*Reference*		
No	121	99	.69	.48	.99	0.045

Table 8: Refrigerator available at home and risk of colorectal cancer

cinogens or Dietary carcinogens. A number of thousand chemicals was reported in smoke of burning tobacco and heating foodstuffs. These chemical were detected in the users blood and urine after intake of these products (Chiu et al., 1998; Friesen et al., 2001; Hayatsu et al., 1985; IARC, 1985; Li et al., 1994; Sinha et al., 1994; Skog et al., 1995; Tareke et al., 2002). By these evidences, we should seriously consider and pay significantly studying on Heat-generated carcinogens and dietary carcinogens to prevent against developing cancer in human.

5. Benefit factors preventing colorectal cancer in Viet Nam

Man could not synthesize micronutrients for our bodys requirement so we rely on a supply from outside. Good foods provide good materials for our bodys energy metabolism and activities preventing against cancer (Chatterjee et al., 1975). Refrigerator is equipment providing a good condition to keep fresh micronutrients for our daily life. An indirect beneficial factor reduced risk of colorectal cancer was observed for refrigerator available at home, OR=0.69, 95% CI=0.48-0.99, $P < 0.05$ (Ngoan et al.), Table 8.

6. Perspectives

Based on local observation in Viet Nam for colorectal cancer, the disease distribution and its causality and risk factors were seen in promoting practical primary prevention in community. Linking these findings, we generated the disease with special points as follows: Colorectal cancer is related to unrecognized heat-generated carcinogens contaminated in our foods: We found tobacco smoking, barbecued meats, bread, biscuits intake increasing risk of the disease. Smoking is heated in 950oC and it induced about 3,800 types of chemicals (IARC, 1985); the others of barbecued meats, bread, biscuits are heated from 165-245oC (Masako, 1984; Stephanie et al., 2001), and it produced smoking, smelling, black color during heated, and bitter taste. These findings were partly published elf where (Ngoan et al., 2009). Chemical is an independent factor inducing cancer that was successful performed and reported first time in 1967 by Dr. Sugimura (Sugimura & Fujimura, 1967). Chemical is generated in heating at temperature as high as from 100-240oC that was also successful performed and reported in 2002 by Dr. Tareke (Tareke et al., 2002). Our epidemiological observation in human consisted with these number of previous studies. Control of cooking temperature in both familys kitchen as well as public restaurants for our daily life in preparing foods should be significantly consideration in preventing colorectal cancer in particular and all cancer sites in general. In our study, alcohol and beer drinking habits would be categorized to be a promoter factor inducing colorectal cancer. Both alcohol and beer are the human foods, such as alcohol provides energy and beer provides vitamins and minerals as well as energy that have been using in our society from ancient to date at worldwide. Alcohol and beer could be categorized as the organic solution of chemical carcinogens contaminated in our foods like tobacco smoking, barbecued meats, bread, and biscuits in our body in promoting risk of colorectal cancer. Host factors committed in developing colorectal cancer included blood type A & AB, CYP1A1 genotypes A/G & G/G, family history of cancer, body mass index, history of colorectal pain and inflammation in our study population in Viet Nam.

Conclusions

We determined three groups of committed risk factors to develop colorectal cancer, that is, the first group is included tobacco smoking, barbecued meats, bread, biscuits intake, the second is a promoter of alcohol and beer drinking habits, and the third is the identified host factors. A promise modification and management of identified risk factors in preventing colorectal cancer should be focused on stop smoking and as well as stop intake foods heated in unsafe cooking temperature daily in both familys kitchen as well as public restaurants.

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