

Cancer Prevention: Ecuador and the United States

*Dr. Charles R. Smart
Dr. Guillermo Paulson
Dr. Francisco Ceballos*

*Departamento de Pediatría, París.
Instituto Curie, Francia.*

Abstracto

Mucho se puede aprender de la prevención del Cáncer comparando la incidencia de cáncer en la provincia del Guayas, Ecuador con la de USA, existen muchas diferencias entre los dos países: económicas, costumbres sociales, trabajos, dieta, razas, y expectativas de vida, etc., todo esto se refleja en la incidencia del cáncer en los dos países.

Palabra clave: Prevención, cáncer.

Abstract

Much can be learned about cancer prevention by comparing the incidence of cancer in the Province of Guayas, Ecuador with that of the United States (U.S.). There are many differences between the two countries: economics, social customs, occupations, diet, races, life expectancies, etc., all of which are reflected in the incidence of cancers in the two countries.

Key word: Cancer, Prevention

Methods

The data from Guayas comes from the Guayas National Regional Cancer Registry (GNRC) which was founded in 1990 and has gathered data from all hospitals, clinics, pathology laboratories and some doctor's offices from 1990 through 1994.

Assuming 70 to 80 % completeness based upon preliminary investigations comparing mortality data from INEC (Department of Health) it should allow meaningful data for a discussion of known causes and possible preventive measures. The data for the U.S. comes from nine population based registries representing about 12 % of the U.S. population from 1973 - 1995. This data and the uniform software program (SEER-Stat) to analyze the data were recently released (April 1998) on a CD-Rom for use on a personal computer. The 9,911 cases from the

Correspondencia y Separatas

Dr. Charles R. Smart

ION - SOLCA

Avda. Pedro Menéndez Gilbert

Ciudadela La Atarazana

P.O.Box: 5255 ó 3623

Guayaquil - Ecuador

Teléfono 288-088 Fax: (5934)278-151

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GNRC were formatted for use in SEER-Stat and the populations for Guayas were obtained from INEC. All rates were age adjusted to a 1970 standard population thus allowing a comparison of data from such different populations.

Results

The over-all yearly incidence of cancer in Guayas was 35 % of that seen in the U.S. (141.09 versus 406.62). The incidence of cancer in Guayas is shown in Figure 1. In nine sites the incidence in Guayas was higher than that seen in the U.S. (Figure 2). The difference was greatest in cancer of the cervix (39.03 cases per 100,000 population per year versus 24.92 in the U.S.). The rates for cancers of the stomach were also increased 15.82 versus 8.36; cancers of the liver 3.73 versus 2.48, cancers of the gallbladder 1.85 versus 1.26, bone and joint 1.42 versus 0.86. Interestingly for cancers of the eye and orbit the rates were exactly the same 0.82 and 0.82. In cancers of the penis the rates were 0.62 and 0.51. In cancers of the retroperitoneum and peritoneum the rates were 0.45 and 0.33 versus 0.42 and 0.22 respectively. In Figure 3, in 18 sites the Guayas rates were lower than in U.S., the most notable being those related to cigarette smoking-lung (4.87 vs 54.62), oral cavity (3.43 vs 11.53), larynx (1.39



vs 4.85), esophagus (1.52 vs 11.53), pancreas (0.99 vs 9.31), urinary bladder (1.98 vs 16.54) and kidney (1.16 vs 8.03). The other four with large differences, breast (12.07 vs 60.22), colon and rectum (7.26 vs 51.3), prostate (12.95 vs 44.23) and uterus (2.67 vs 13.8) are thought to be related to a high fat diet as seen in the U.S. The very low rate of melanoma in Guayas is related to the large population with an increase in skin pigment as compared to the U.S. (0.46 vs 12.78).

Discussion

The major cancer problem in Guayas is cancer of the cervix. It is considered a sexually transmitted disease associated with the human papilloma viruses 16 and 18 in the majority of cases. This is consistent with the increase in incidence among women having multiple sexual partners. In the past it was also increased among women married to uncircumcised males. In Ecuador there has been a decrease in the routine practice of circumcision. Cancer of the penis is increased in Guayas over that in the U.S. where circumcision is still a routine procedure in newborn males. Consideration should be given to reinstituting routine circumcision in Ecuador. After 30 years of having a decreasing incidence in the U.S., beginning in 1982 with the sexual revolution, cancers of the cervix have continued to increase. This increase was in *in situ* carcinomas which are non-life threatening and easily treated to cure. Invasive cancers did not increase but stabilized or continued to decrease in incidence along with mortality rates. This phenomena is related to the high compliance of U.S. women in obtaining routine pap smears detecting cancers while they are still curable. Unfortunately such is not the case in Guayas where many women do not receive pap smears and the mortality rate is high. A more vigorous Pap screening campaign is needed.

Cancer of stomach is the second largest problem in Guayas as it is in many other parts of the world where food refrigeration is limited. The Guayas rate is double that of the U.S. where there is with better preservation of food. In the U.S. the incidence and mortality rates for cancer of the stomach have been decreasing over the past 60 years. However, once a case is diagnosed and treated, the outcome has remained about the same over the years with a 12-15 % survival rate. In Japan and a few other countries where gastric cancer has been major cause of death, various types of screening programs have succeeded in detecting a greater number of cases at earlier stages of disease with a corresponding improvement in survival rates. Prevention is better than cures in decreasing mortality. In Guayas prevention is a dietary, an economic and a public health issue.

It has long been recognized that in regions of the world

where gastric cancer is a major problem, the incidence of colorectal cancer is reduced. The etiological agent that causes gastric cancer reduces the risk of colorectal cancer. This appears to be the result in Guayas as well where the colorectal incidence is only 14 % of that in the U.S. In the U.S. where gastric cancer is low (now 10th. in incidence), colorectal cancer is high. This is considered to be due to a refined diet that lacks enough roughage (fiber). Bile acids are known to be carcinogenic and the longer they remain in contact with the mucosa of the large bowel the more opportunity there is of developing a carcinoma, first as an adenomatous polyp and later as an invasive carcinoma. Fewer than 9 % of colorectal cancers are hereditary. The remainder are sporadic based upon the internal environment of the colon. Numerous randomized screening trials and case control studies have now proven that earlier detection through screening asymptomatic individuals over 50 years of age with stool guaiac and or sigmoidoscopy every 3-5 years will decrease mortality by 30-50 %. In Guayas, nature's prevention appears to be working and with such a low incidence it is doubtful that any mass screening programs should be undertaken.

Prostate cancer in Guayas is third in incidence. It is 29.3 % of the U.S. rate. There is no known prevention although it is considered by some to be related to a high fat diet with an evaluation of serum triglycerides. Screening men over 50 years of age with Prostate Specific Antigen (PSA) has been dramatic in the U.S. in detecting many early cancers and has resulted in a decrease in the diagnosis of those with distant disease.

There has also been a 6.5 % decrease in mortality between 1990 and 1996. It is probably good medical practice to screen individual patients, although mass screening at present does not seem to be indicated in Ecuador.

Breast cancer in Guayas is 4th. in incidence. It is also 29 % of the U.S. rate. Recently Tamoxifen has succeeded in decreasing the expected incidence of breast cancer in a randomized trial, but this is not yet a preventive treatment to be recommended. Self breast examination has been responsible in the U.S. for bringing the majority of women with a lump in their breast to their physician. This percentage has been decreasing in the U.S. due to widespread use of mammographic screening.

Mammography has been proven in randomized screening trials to decrease mortality about 30%. Non-randomized studies have suggested that the benefit may be as high as 48 %. Physician examination can also detect earlier disease and is recommended by the American Cancer Society and others to be part of a mammographic examination since about 15 % of palpable breast cancers



cannot be detected on a mammogram. The American Cancer Society recommends to physicians and to women that self breast examination be performed regularly and that a physician examination and a mammogram be performed annually beginning at age 40.

Lung cancer in Guayas is 5th in incidence. It is 20 % of the U.S. rate. Prevention by not smoking is the only proven way to decrease mortality. It is the leading cause of death from cancer in U.S., even in Utah where the incidence of lung cancer is 50 % (26.5 vs 54.6) of the incidence in the U.S. Most lung cancers are detected when incurable with distant disease. In the U.S. through vigorous educational campaigns the incidence and mortality rates in men are decreasing, in women although about half the rate in men the incidence and mortality rates are still increasing. In the

interest of prevention, educational programs against smoking should be vigorously conducted particularly among children who have not yet become addicted.

Conclusion

Preventive measures are possible in the major cancer killers both in Guayas and in the U.S. Prevention immediately decreases mortality while the results of treatment are delayed and may or may not be effective. The most important method of enhancing treatment is earlier detection. The weapons of cancer control are prevention through education, early detection through screening, early diagnosis in the doctor's office, and treatment and rehabilitation. All

