RESEARCH ARTICLE

Cancer Prevalence in Easter Island Population - 2006-2010

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Abstract

In Easter Island, population is composed by original habitants, the Rapa Nui culture and introduced people, mainly from continental Chile, who have a different ethnic origin. The aim of this research was to describe cancer frequency in resident population in Easter Island, and secondarily compare the findings with other islands of Polynesia and continental Chile. We reviewed the statistics of patients treated in Hanga Roa Hospital during the period 2006-2010, finding a total of 49 patients with cancer during the study. The most frequent cancers in Easter Island's people were breast cancer (8 cases), skin (8 cases), cervical (8 cases), lung (5 cases) and gastric (4 cases). According to gender, in females the most frequent cancer was breast, followed by skin and cervical, while in men, lung, prostate and hematopoietic cancers were the most frequent. Most cases of cervical cancer occurred in women of Rapa Nui ethnicity, while most skin cancers were found in non-Rapa Nui people. In case of the most common cancer in Easter Island, education (e.g. Papanicolaou and mammography screening) and prevention in the community (e.g. use sun block, avoid cigarettes) should be useful tools to reduce incidence.

Keywords: Easter Island - cancer prevalence - Rapa Nui ethnicity - Chile

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Introduction

Easter Island is a small island of 180 km^2, it is located in the eastern corner of the Polynesian triangle, at 3,800 km from American coast. Historically it has been inhabited by the Rapa Nui culture, makers of giant stone statues called Moais. Chile keeps the sovereignty of Eastern Island since 1888, resulting in a progressive fusion between Polynesian ethnic (Rapa Nui), Chileans (Average mixing: 66% Caucasian and 34% Amerindian) (Arcos-Burgos et al., 2004) and other visitants of many parts of the world (France, England, French Polynesia, Spain and others countries), giving descendants to the island (Englert, 2009; Stambuk, 2010). Easter Island currently has 5,000 inhabitants (INE, 2008), being approximately 60% with Rapa Nui blood, and 40% without it, mainly Chileans.

In Chile, cancer is the second cause of death after cardiovascular disease. However our country has limited data on prevalence and incidence of cancer. It has been calculated death rate because of cancer in Chilean population, standing out in female, breast, gastric, biliary carcinoma, lung, cervical and colon cancer. In men stands out gastric cancer, prostatic, lung, pancreatic and colon cancer (INE, 2008).

The purpose of our work was to describe the types of cancer of the resident population of Easter Island in the last five years, taking into account some epidemiological variables. We also want to compare our cases with Chilean and Polynesian's prevalence and cancer incidence.

Materials and Methods

This is a Retrospective descriptive study. We reviewed patient's statistics with diagnosis of cancer in Hanga Roa Hospital, since January 2006 until December 2010, keeping in mind some epidemiological data from patients. To classify patients as "Rapa Nui" we considered they should have at least one Rapa Nui last name. We used Microsoft Office Excel 2007 program for tabulation data.

Results

We found a total of 49 patients with diagnosis of cancer during the investigation. Thirty two of them were Rapa Nui (65.3%) and 71.4% were women. Regarding type of cancer (Table 1), in women stands out the frequency of breast, skin and cervical cancer. Meanwhile in men stands out the frequency of lung, prostate and hematopoietic cancer. According to ethnicity, 87% of cervical cancer was in Rapa Nui women and 75% of skin cancer occurred in non-Rapa Nui patients. Kids and adolescents were the ones who suffered hematopoietic cancer; in adults prevailed breast and cervical cancer, while in elderly stood out skin cancer.

For comparison, the Globocan 2008 data for Chile indicate that prostate, stomach, lung and colorectals cancers are the four most common in males, while in females the order is breast, cervix, gallbaladder and colorectum (Bray et al., 2013)

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Table 1. Cancer Cases in Eastern Island Population in 2006-2010, by Type, Gender and Ethnicity

Type of Cancer	Male	Female	Male	Female	Total
Breast	0	6	0	5	11
Cervix	0	7	0	1	8
Skin	0	2	0	6	8
Lung	3	1	1	0	5
Stomach	1	1	0	2	4
Prostate	2	0	1	0	3
Colon	1	1	0	0	2
Lymphoma/Leukemia	2	0	0	0	2
Vulva	0	2	0	0	2
Endometrium	0	0	0	1	1
Kidney	1	0	0	0	1
Bladder	1	0	0	0	1
Pancreas	1	0	0	0	1
Total	12	20	2	15	49

Table 2. Cancer Cases in Eastern Island Population in 2006-2010, by Mean Age

Type of Cancer	Mean Age
Skin Cancer	61.0
Cervix Cancer	46.3
Colon Cancer	53.0
Endometrium Cancer	51.0
Gastric Cancer	59.8
Breast Cancer	48.3
Lymphoma/Leukemia	6.0
Pancreatic Cancer	73.0
Prostatic Cancer	71.7
Lung Cancer	57.2
Kidney Cancer	53.0
Gallbladder Cancer	81.0
Vulvar Cancer	71.0

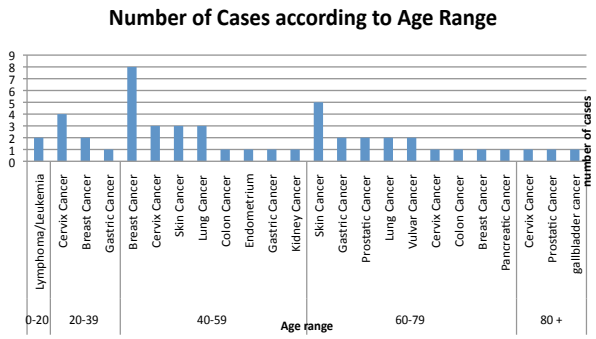

Figure 1. Cancer Cases in Eastern Island Population in 2006-2010, According to Age Range

Discussion

Hanga Roa Hospital is the only medical center in Eastern Island. This means that most of suspicions and cancer diagnosis were in our hospital, while a little proportion may have been diagnosed, treated or passed away in some hospital of continental Chile or Tahiti Island, French Polynesia, with the consequent underreporting of such cases in our investigation.

Ethnic mix found in Eastern Island suggests that the most common cancers may be different from the epidemiology of continental Chile and other Polynesian islands. However, we saw that incidence of cancer varies greatly according to the Polynesian island studied and continental Chile as well (Dachs et al., 2008; Moore et al., 2010).

Breast cancer is the most common kind of cancer in women in Polynesian islands, just like continental Chile and Eastern Island (Prieto and Torres, 2006). Skin cancer is unusual in Polynesia but in continental Chile, incidence changes according to geographic area, where highest records are found in places with warm climate that allows more outdoor activities (Moreno and Lopehandía, 2007). Rapa Nui's skin is darker than continental Chileans' and that might explain why they have lower records of skin cancer than continental Chile.

Cervical cancer has a very important incidence in most Polynesian islands, continental Chile (Serman, 2002) and Eastern Island. This cancer is related, among other factors, to access to screening test for earlier detection of cancer or pre-cancer wounds. In our study most women affected were Rapa Nui. We think it could be explained by the fact that continental Chileans are more aware of the benefits of Papanicolaou test because of Health Ministry's public politics with very important educational campaigns. Probably, education about the Papanicolaou test in Rapa Nui women hasn't being enough, there are cultural and language barriers that should be overcome with appropriate strategies.

On the other hand, lung cancer was the most frequent in men, just like in other Polynesian islands. Continental Chile doesn't have records of its incidence. However, it is estimated a high incidence because in 2008, this kind of cancer was the second cause of death by cancer, next to gastric cancer (INE, 2008) and over 40% of Chilean population smokes (Erazo et al., 2008). It is estimated in Eastern Island a high prevalence of smoking habit as well, which could explain those 5 cases that we found in this review.

Gastric cancer has a low incidence in most Polynesian islands, but Chilean population has one of the highest incidences of the world (Calderón et al., 2007). In Eastern Island population there are 4 cases, with no ethnic differences. We don't know the prevalence of people infected with *Helicobacter pylori*, so that should be a new investigation.

Prostatic cancer has a high incidence in Polynesia and in continental Chile (Corti et al., 2002) but we found only 2 cases in Eastern Island, so we suppose a low incidence. For this type of cancer, just like colon, hematopoietic, vulvar, endometrial, kidney, pancreas and bladder cancer is difficult getting conclusions due low number of patients we found.

Education in the community (for example Papanicolaou test and mammography as screening methods) and prevention (for example sun blocking use, quitting smoking) should be emphasized as useful tools to reduce incidence or to detect earlier states of the most common cancers in Eastern Island.

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