Original Research Paper

Statistics

AGE AT MENARCHE AND INCIDENCE OF BREAST CANCER IN DIFFERENT STATES OF INDIA: A SITUATIONAL ANALYSIS

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ABSTRACT Breast cancer has ranked number one cause of mortality globally. It is the second most common cancer among Indian women. The data in this study is taken from Ministry OF Health and Family Welfare, Department of Health and Family Welfare and from the previous studies conducted. The data is analyzed using SPSS 1.6. After analysis the data, results were computed and discussion was made.

Discussion: Uttar Pradesh is observed with around 125% more incidence cases than Tamil Nadu. Maharashtra, West Bengal and Bihar are found increments of around 55%, 15% and 5% respectively when a comparison is made with incidence cases of Tamil Nadu. In case of states having lower incidence cases, 18%, 26%, 57% and 233%additional numbers of cases occur in Mizoram, Meghalaya, Tripura and Manipur when these incidences are compared with incidences in Arunachal Pradesh.

If we put our concentration on mean age at menarche, near about 8%(Himachal Pradesh) , 2.2% (Maharashtra), 1%(Haryana)and0.64% (Delhi) increases are observed as compared to Uttar Pradesh. Increases of 0.83 % (Assam),7.5%(Andhra Pradesh),8.3%(Jammu & Kashmir and Manipur) are also disclosed when it is compared with mean age at menarche of Arunachal Pradesh.

Study found a positive correlation between Incidence of breast cancer and mean age at menarche with a non-significant regression analysis.

KEYWORDS : Incidence of Breast Cancer, Age at Menarche

Introduction

Menarche is the medical term for a woman's first menstruation. In the year 2005 the mean age at menarche among Indian women reported was 13.76 years (95 % CI: 13.75, 13.77)(Pathak P.K.,Triphati N.2014). If we talk about Breast cancer, it has killed 425,000 women of whom 68,000 were aged 15-49 years in developing countries in 2010.(Forouzanfar MH,2011).According to an estimate, about 15.0 million new cancer cases are expected to be diagnosed with about 12.0 million cancer deaths by 2020. (Brayand et al, 2006;Ansari F.and Dixit A.K,2015).In this paper, we present a statistical analysis considering two factors viz. age at menarche and incidence of breast cancer in different states of India. India, the second-most populous country with over 1.2 billion people, is a country in South Asia. It is the seventh-largest country by area, with a total area of 3,287,263 square kilometres. India has 29 states, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttaranchal, West Bengal and Telangana with 7 Union Territories (UTs) viz. A & N Islands, Chandigarh, D & N Haveli, Daman &Diu, Delhi, Lakshadweep and Pondicherry.(Ansari F.and Ayaz A,2016).In this study Goa, Sikkim Nagaland and Telangana are not considered as the data was not available for these states.

Results:

Table1 shows state-wise Incidence of breast cancer, which is used in the development of the paper.

Table1: Incidence of breast cancer in different states of India

States	Incidence of breast cancer	States	Incidence of breast cancer
Andhra Pradesh	5901	Madhya Pradesh	8334
Arunachal Pradesh	82	Maharashtra	14726
Assam	2406	Manipur	273
Bihar	9958	Meghalaya	104
Chhattisgarh	2944	Mizoram	97
Delhi	3181	Orissa	4205
Gujarat	8001	Punjab	3321
Haryana	3103	Rajasthan	7536
Himachal Pradesh	613	Tamil Nadu	9486
Jammu & Kashmir	1421	Tripura	129
Jharkhand	3716	Uttar Pradesh	21376
Karnataka	8029	Uttaranchal	1217
Kerala	5682	West Bengal	10902

Table2 shows state-wise mean age at menarche. This table also has its role in this study development.

Table2: Mean age at menarche in different states of India

States	Mean age at menarche	States	Mean age at menarche
Andhra Pradesh	12.91	Madhya Pradesh	13.68
Arunachal Pradesh	12	Maharashtra	14.45
Assam	12.1	Manipur	13
Bihar	13.82	Meghalaya	13.37
Chhattisgarh	13.54	Mizoram	14
Delhi	14.23	Orissa	13.02
Gujarat	13.34	Punjab	13.68
Haryana	14.31	Rajasthan	13.66
Himachal Pradesh	15.29	Tamil Nadu	13.01
Jammu & Kashmir	13	Tripura	13.92
Jharkhand	13.45	Uttar Pradesh	14.14
Karnataka	13.03	Uttaranchal	14
Kerala	13.31	West Bengal	13.09

The correlation computed is shown by the table3

Table3: Correlation between incidence of breast cancer (IBC) and mean age at menarche (MAAM)

Correlations			IBC	MAAM
IBC	Pearson Correlation		1	0.151
	Sig. (2-tailed)			0.462
	N		26	26
MAAM	Pearson Correlation		0.151	1
	Sig. (2-tailed)		0.462	
	N		26	26

Results of ANOVA is shown by table4

Table4: Anova table

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.51E+07	1	1.51E+07	0.559	0.462
	Residual	6.50E+08	24	2.71E+07		
	Total	6.65E+08	25			
a. Predictors: (Constant), MAAM						
b. Dependent Variable: IBC						

Incidence of breast cancer is found highest in Uttar Pradesh and then in Maharashtra, West Bengal, Bihar and Tamil Nadu respectively. The same is found lowest in Arunachal Pradesh, Mizoram, Meghalaya, Tripura and Manipur respectively.

As far as mean age at menarche is concerned, Himachal Pradesh, Maharashtra, Haryana, Delhi and Uttar Pradesh respectively are observed having higher side of mean age at menarche. Whereas, Arunachal Pradesh, Assam, Andhra Pradesh, Jammu & Kashmir and Manipur respectively are found having minimum mean age at menarche.

The correlation between mean age at menarche and incidence of breast cancer computed is 0.151.Anova table resulted F=.559 .

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