

RESEARCH ARTICLE

Clinico-pathological Features of Gynecological Malignancies in a Tertiary Care Hospital in Eastern India: Importance of Strengthening Primary Health Care in Prevention and Early Detection

Madhutandra Sarkar^{1*}, Hiralal Konar², Deepak Raut³

Abstract

Background: This cross-sectional observational study was undertaken to establish clinico-pathological characteristics of patients with gynecological malignancies, focusing mainly on symptoms, histological type and stage of the disease at presentation, in a tertiary care setting in Eastern India. **Materials and Methods:** In the gynecology out-patient clinic of a tertiary care hospital in Kolkata, India, the patients with suggestive symptoms of gynecological malignancies were screened. Their diagnoses were confirmed by histopathology. One hundred thirteen patients with histopathologically confirmed gynecological malignancies were interviewed. **Results:** The most frequently reported symptoms by the patients with histopathologically confirmed gynecological malignancies were excessive, offensive with or without blood stained vaginal discharge (69.0%), irregular, heavy or prolonged vaginal bleeding (36.3%) and postmenopausal bleeding (31.9%). The majority of the patients (61.0%) had squamous cell carcinoma on histopathological examination, followed by adenocarcinoma (30.1%). Nearly half of the patients (48.7%) were suffering from the Federation Internationale des Gynaecologues et Obstetristes (FIGO) stage III, followed by stage II (40.7%) malignancy. **Conclusions:** This study highlights that most of the patients with gynecological malignancies present late at an appropriate health care facility. Ovarian cancer may often have non-specific or misleading symptomatic presentation, whereas cervical cancer often presents with some specific symptoms. These observations point to the need for increasing awareness about gynecological malignancies in the community and providing easily accessible adequate facilities for early detection and treatment of the disease by optimal use of available resources, i.e. strengthening the primary health care system.

Keywords: Clinico-pathological - gynecological malignancies - awareness - early detection - women - India

Asian Pacific J Cancer Prev, 14 (6), 3541-3547

Introduction

Gynecological malignancies are a group of different malignancies of the female reproductive system (Senate Community Affairs References Committee, Commonwealth of Australia, 2006), which include cancers of the ovary, cervix and body of the uterus, vulva, vagina (Department of Health, Social Services and Public Safety, Northern Ireland, 2002; Senate Community Affairs References Committee, Commonwealth of Australia, 2006), and also gestational trophoblastic neoplasia (GTN) (Dutta, 2003). Unfortunately enough, they are significant causes of morbidity and mortality among women throughout the world (Siyal et al., 1999). In India, irrespective of social class, the number of gynecological cancers is increasing over the years, with more cases at the younger age (Chhabra et al., 2002).

Carcinoma of the cervix remains to be the leading

cause of death from cancer among women in the developing countries (Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, 2005), with more than 80% of the cervical cancer cases occurring in this part of the world (Sankaranarayanan and Ferlay, 2006). However, according to the published literature, 13% of cancers in women (uterine cervix) can be potentially screened and prevented in India (Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, 2005). The picture is almost the same for the ovarian cancer also. Most women with ovarian cancer present at a late stage with only about 25% of them are detected in stage I. Ovarian cancer is the leading cause of death from a gynecological malignancy (Laurvick et al., 2003), though in many cases, it is curable with the currently available therapy if detected early (Senate Community Affairs References Committee, Commonwealth of

¹Department of Community Medicine, Chettinad Hospital and Research Institute, Chennai, ²Department of Obstetrics and Gynecology, Calcutta National Medical College and Hospital, Kolkata, ³Department of Community Medicine, VM Medical College and Safdarjung Hospital, New Delhi, India *For correspondence: dr.madhutandra.sarkar@gmail.com

Australia, 2006). Endometrial carcinoma and vulval/vaginal carcinoma are usually the malignancy of elderly women and therefore add to the mortality significantly.

Clinical history and examination is the first and the most important step in the diagnosis of malignancy. The gold standard for diagnosis of any malignancy is tissue biopsy (Brand, 2007) and the stage at presentation is the most important determinant of survival in cancer. There are certain early warning symptoms of cancer, which could be used to screen out the patients at the early stage. In this regard, the health professionals should be on high alert to recognize any suspicious symptom or sign that should follow with a thorough history and clinical examination. Finally, they should confirm any clinical suspicion of malignancy by various diagnostic methods which would further help to know the type of cancer, the extent (staging) of cancer, treatment options and prognosis, as well as follow-up evaluation.

Trials to improve survival from cancer require more accurate staging and diagnosis. In addition to that, identification of the significant prognostic factors in order to recognize the low- and high-risk groups of patients may also help (Tropé and Makar, 1991). It is extremely essential to diagnose the disease at the earlier stages. Therefore, when patients experience a symptom they need to know what action to take, as delayed presentation of cases always results in poor outcome.

The late diagnosis of gynecological malignancies not only reduces the treatment options and survival rate, the available treatment options become expensive also. Although the most confirmatory test for the diagnosis of malignancy is considered to be histopathological examination of tissue specimens, according to the publications by the same authors, it is seen that identification of certain epidemiological factors and warning symptoms of gynecological malignancies may be helpful in early diagnosis of these cancers (Sarkar et al., 2010; 2012). In this regard, adequate knowledge about gynecological malignancies and good health care seeking behavior of the patients are quite helpful (Sarkar et al., 2011).

With the above background, this study was undertaken with the following objectives: i) To find out the presenting symptoms of the patients suffering from the histopathologically confirmed gynecological malignancies. ii) To find out the histological types of gynecological malignancies. iii) To find out the Federation Internationale des Gynaecologues et Obstetristes (FIGO) stage of the disease at the time of examination.

Materials and Methods

Type of study

Hospital-based cross-sectional observational study.

Place of study

This study was conducted in the gynecology out-patient clinic, Department of Obstetrics and Gynecology, Nilratan Sircar Medical College and Hospital, a tertiary care hospital in Kolkata, West Bengal, India.

Duration of study

One year, from May 2006 to April 2007.

Study population

Newly registered patients with gynecological morbidity of variable severity, attending the gynecology out-patient clinic of the above-mentioned hospital.

Sampling

The number of days available for the data collection was two fixed days each week, which were chosen by lottery method. Thus, Friday and Saturday were chosen. According to the previous records (2002-2003, 2003-2004 and 2004-2005), the total number of gynecological malignancy patients reported annually on Friday and Saturday was on an average 215, among the average total number of 5126 newly registered patients. Therefore, the expected percentage of the patients with gynecological malignancy, based on the previous records, was calculated as 4.2%, among the total new gynecological morbidity cases on Friday and Saturday.

As the expected number of patients with gynecological morbidity during the period of study, based on the previous records, was approximately 4272, around 50% of these patients, i.e. 2136 were proposed to be selected for the study, with random selection of the first patient and then every alternate patient.

However, it was possible to cover 2141 patients during the period of study.

Study tools

i) A pre-designed and pre-tested checklist and a pre-designed and pre-tested schedule, ii) Hospital records, iii) Past health records of the patients, iv) Investigation reports, particularly histopathology reports, v) Cusco's bivalve self-retaining vaginal speculum, vi) Stethoscope and sphygmomanometer.

Study technique

i) Interview method, ii) Clinical examination.

Methodology

Approval was obtained from the hospital ethics committee. The checklist and the schedule were drawn up in English, translated in Bengali (local language) and back translated in English to check the translation. Pre-testing of the checklist and the schedule were done in the gynecology out-patient clinic of the same hospital before starting of the study on 10 patients and accordingly necessary modifications were made and these were finalized. The gynecology out-patient clinic was visited as said. The patients with the symptoms suggestive of gynecological malignancies were screened out. Presence of at least two suggestive symptoms was considered for inclusion of the patients. The symptoms considered for screening were contact bleeding, irregular, heavy or prolonged vaginal bleeding, postmenopausal bleeding, excessive, offensive with or without blood stained vaginal discharge, lump in abdomen, abdominal distension or discomfort, vulval growth. Informed consent to participate in the study was obtained from all the eligible patients

who agreed to cooperate in the physical examination and necessary investigations. Necessary examinations and investigations especially histopathological examination were done for confirmation of diagnosis. The checklist was used for screening and the schedule was used for the patients with histopathologically confirmed gynecological malignancies. The schedule consisted of few sections, i.e. general information, detailed history (menstrual history including menstrual hygiene, obstetrical, medical, surgical, family and personal history), presenting symptoms, clinical examination findings, histopathological examination reports, definitive diagnosis with FIGO staging of gynecological malignancies and finally questions regarding knowledge about gynecological malignancies and health care seeking behavior of the patients. The first question that was asked to elicit the knowledge of the patients about gynecological malignancies was whether they had heard about gynecological cancer. In case the answer was "yes", what they had heard about this disease and from whom, whether the disease was treatable, etc. were asked. These questions were followed by with whom they had discussed their symptoms first, with whom they had first contacted for the management of their symptoms, what was the time interval between the onset of symptoms and first attendance in this hospital, etc. to elicit their health care seeking behavior. In-depth interview was conducted to elicit the knowledge about gynecological malignancies and health care seeking behavior of the patients.

Analysis of data

Data obtained were collated and analyzed statistically by simple proportions and tests of significance (chi-square test), as and when necessary.

Limitations of the study

As the study population was screened out to identify the possible cases of gynecological malignancies on the basis of certain symptoms, few cases of gynecological malignancies not having the suggestive symptoms might have been missed.

This study was undertaken among women who presented to a gynecology out-patient clinic for diagnosis and treatment of gynecological morbidities and who

agreed to participate in the research. Care has to be taken not to extrapolate the findings of this study to all women suffering from gynecological malignancies in the community. It is likely that women who do not wish to be investigated and interviewed and particularly those who do not seek medical care may differ in their knowledge as well as health care seeking behavior.

This study could possibly be compared with similar studies from the developing world. The findings of this study might not corroborate with similar studies from the developed nations.

Results

This study shows that, during the study period, among the 2141 patients attending the gynecology out-patient clinic, Department of Obstetrics and Gynecology of the said hospital, 483 patients (22.6%) were suffering from the symptoms suggestive of gynecological malignancies. Six patients (0.3%) were lost to follow up. Therefore, 477 patients (22.3%) could further be studied and the diagnosis of all of them was confirmed by histopathology. Finally, the diagnosis of 113 patients (5.3%) was confirmed as gynecological malignancies, of which cervical malignancy was the commonest (70 out of 113 patients or 61.9%), followed by ovarian malignancy (27 out of 113 patients or 23.9%). Contribution of other malignancies was endometrial malignancy and GTN in 5.3% of the patients each. However, vulval malignancy and vaginal malignancy were rare (1.8% of the patients each).

More than two-third of the patients with gynecological malignancies (78 out of 113 patients or 69.0%) were in the age range of 35-64 years with mean age of 45.8 years. More than two-third of the patients with gynecological malignancies (78 patients or 69.0%) had come from rural areas. Almost all the patients with gynecological malignancies (109 patients or 96.5%) were "ever-married", i.e. currently married or widowed or separated. More than half of the patients with gynecological malignancies (62 patients or 54.9%) were illiterate/just literate. Median value of the per capita monthly income of family of the patients was Rs. 400 and mean value was Rs. 543 with a range of Rs. 100-2,500. The mean per capita monthly income of family of the patients in this study is nearly

Table 1. Distribution of Patients with Gynecological Malignancies According to Presenting Symptoms (n=113)

Presenting Symptoms ^a	Cervix (n ₁ =70)	Ovary (n ₂ =27)	Endometrium (n ₃ =6)	Vulva (n ₄ =2)	Vagina (n ₅ =2)	GTN (n ₆ =6)	Total (n=113)
Contact Bleeding ^b	12 (17.1)	-	1 (16.7)	-	1 (50.0)	-	14 (12.4)
Irregular, Heavy or Prolonged Vaginal Bleeding	29 (41.4)	3 (11.1)	2 (33.3)	-	1 (50.0)	6 (100.0)	41 (36.3)
Postmenopausal Bleeding	32 (45.7)	-	4 (66.7)	-	-	-	36 (31.9)
Excessive, Offensive With or Without Blood Stained Vaginal Discharge	65 (92.9)	4 (14.8)	3 (50.0)	2 (100.0)	2 (100.0)	2 (33.3)	78 (69.0)
Lump in Abdomen	1 (1.4)	24 (88.9)	1 (16.7)	-	-	4 (66.7)	30 (26.5)
Abdominal Distension or Discomfort	1 (1.4)	23 (85.2)	1 (16.7)	-	-	-	25 (22.1)
Abdominal Pain	14 (20.0)	16 (59.3)	1 (16.7)	-	-	2 (33.3)	33 (29.2)
Vulval Growth	-	-	-	2 (100.0)	-	-	2 (1.8)
Pruritus Vulvae	1 (1.4)	1 (3.7)	-	2 (100.0)	-	-	4 (3.5)
Miscellaneous ^c	9 (12.9)	17 (63.0)	-	2 (100.0)	-	1 (16.7)	29 (25.7)

*Figures in the parentheses indicate percentages. ^aMultiple responses. ^bContact bleeding: It includes bleeding during examination and sexual intercourse. ^cMiscellaneous: It includes Loss of weight; Respiratory distress; Gastro-intestinal symptoms like dyspepsia, loss of appetite with a sense of bloating after meals, diarrhea; Urinary symptoms like frequency of micturition, pain in urination, difficulty in urination, hematuria, true incontinence of urine. GTN: Gestational trophoblastic neoplasia

one-fourth of that of India's value. Nearly two-third of the patients with gynecological malignancies (73 patients or 64.6%) were of parity 3 or higher with mean parity of 3.6. Detailed socio-demographic characteristics of the patients have been reported in earlier literature (Sarkar et al., 2012).

Table 1 shows that the most frequently reported symptoms by the patients with histopathologically confirmed gynecological malignancies were excessive, offensive with or without blood stained vaginal discharge (78 out of 113 patients or 69.0%), irregular, heavy or prolonged vaginal bleeding (36.3%) and postmenopausal bleeding (31.9%). Other symptoms reported were abdominal pain (29.2%), lump in abdomen (26.5%), abdominal distension or discomfort (22.1%), contact bleeding (12.4%), pruritus vulvae (3.5%) and vulval growth (1.8%). Twenty-nine patients (25.7%) reported miscellaneous symptoms including loss of weight; respiratory distress; gastro-intestinal symptoms like dyspepsia, loss of appetite with a sense of bloating after meals, diarrhea; urinary symptoms like frequency of micturition, pain in urination, difficulty in urination, hematuria, true incontinence of urine. Out of these 29 patients who had miscellaneous symptoms, 17 patients (58.6%) had ovarian cancer and 9 patients (31.0%) had cervical cancer. Interestingly, miscellaneous symptoms were present in 63.0% of the ovarian cancer patients and 12.9% of the cervical cancer patients.

This table also depicts that most of the patients (65 out of 70 patients or 92.9%) with cervical malignancy reported excessive, offensive with or without blood stained vaginal discharge, whereas most of the patients (24 out of 27 patients or 88.9%) with ovarian malignancy reported lump in abdomen and two-third of the patients (4 out of 6 patients or 66.7%) with endometrial malignancy reported postmenopausal bleeding.

Regarding the histological types of gynecological malignancies, majority of the patients (61.0%) with gynecological malignancies had squamous cell carcinoma on histopathological examination, followed by adenocarcinoma (30.1%). Almost all the patients with cervical malignancy (95.7%) had squamous cell carcinoma, whereas adenocarcinoma dominated the ovarian tumors (88.9%). All the patients with endometrial malignancy had adenocarcinoma, whereas choriocarcinoma was evident on histopathology of all the patients with GTN. Two patients each of vulval malignancy and vaginal malignancy had squamous cell carcinoma and adenocarcinoma respectively (Table 2).

Figure 1 depicts the stage of the disease (FIGO) at the time of examination. Nearly half of the patients (48.7%) with gynecological malignancies were suffering from stage III malignancy, followed by stage II (40.7%). Almost all the patients (95.7%) with cervical malignancy had disease in stage II and above. No one with ovarian malignancy had stage I disease, whereas more than two-third (70.4%) of the ovarian cancer cases were in stage III and IV. Two-third of the patients (66.6%) with endometrial malignancy presented with stage II disease.

Discussion

This study is an attempt to investigate the clinico-pathological presentation of the patients with gynecological malignancies in a tertiary care setting in Eastern India with an emphasis on the present scenario of cancer control activities in India. During the study period, 5.3% of the overall outpatients (113 out of 2141 patients) were diagnosed as the histopathologically confirmed cases of gynecological malignancies. Cervical malignancy (61.9%) and ovarian malignancy (23.9%) were identified as the two most common types of gynecological malignancies.

While analyzing the symptoms, excessive, offensive with or without blood stained vaginal discharge (69.0%) was found to be the most frequently reported symptom on presentation by the patients with histopathologically confirmed gynecological malignancies. Other common symptoms reported were irregular, heavy or prolonged vaginal bleeding (36.3%) and postmenopausal bleeding (31.9%). Most of the patients (92.9%) with cervical malignancy reported excessive, offensive with or without blood stained vaginal discharge. Nearly similar

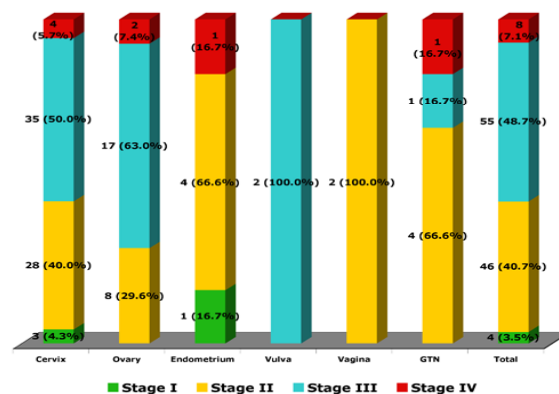


Figure 1. Distribution of Patients with Gynecological Malignancies According to the FIGO Stage of the Disease at the Time of Examination (n=113)

Table 2. Distribution of Patients with Gynecological Malignancies According to Histological Types (n=113)

Histological Type	Cervix	Ovary	Endometrium	Vulva	Vagina	GTN	Total
Squamous Cell Carcinoma	67 (95.7)	-	-	2 (100.0)	-	-	69 (61.0)
Adenocarcinoma	2 (2.9)	24 (88.9)	6 (100.0)	-	2 (100.0)	-	34 (30.1)
Adenosquamous Carcinoma	1 (1.4)	-	-	-	-	-	1 (0.9)
Malignant Germ Cell Tumor of Ovary	-	2 (7.4)	-	-	-	-	2 (1.8)
Sex Cord Stromal Tumor of Ovary	-	1 (3.7)	-	-	-	-	1 (0.9)
Choriocarcinoma	-	-	-	-	-	6 (100.0)	6 (5.3)
Total	70 (100.0)	27 (100.0)	6 (100.0)	2 (100.0)	2 (100.0)	6 (100.0)	113 (100.0)

*Figures in the parentheses indicate percentages. GTN: Gestational trophoblastic neoplasia

to the above findings, Chhabra et al. (2002) in a rural institutional study in India observed that white/blood stained discharge was complained by most of the patients (61.2%) with gynecological malignancies, followed by heavy, prolonged/infrequent menses/postmenopausal bleeding (57.1%). Most frequently reported symptom among cervical malignancy patients as found by Chhabra et al. (2002) was white/blood stained discharge (76.9%). In contrary to the present study where most of the patients (88.9%) with ovarian malignancy reported lump in abdomen, the most common presenting symptom among ovarian cancer patients as found by Chhabra et al. (2002) was pain in abdomen (62.8%). Odukogbe et al. (2004) reported abdominal swelling as the most common presenting symptom among the patients of ovarian cancer in a hospital of Nigeria. A recently published study from a tertiary care hospital of Pakistan (Saeed and Akram, 2012) had reported abdominal pain (74.6%) and distension (76.0%) as the most common presenting symptoms of patients with epithelial ovarian cancer. Two-third of the patients (66.7%) with endometrial malignancy reported postmenopausal bleeding in the present study. Sultana and Kiyani (2005) in their study conducted in a hospital of Pakistan similarly observed that bleeding per vagina was the commonest feature amongst the patients of endometrial carcinoma. A recently published study from Pakistan (Mohyuddin et al., 2012) also depicts the nearly similar picture as discussed above regarding the symptomatic presentation of gynecological malignancies at a tertiary care hospital. Certain number of patients in the present study had miscellaneous symptoms, which resembled very much after gastro-intestinal, urinary and respiratory problems. Interestingly enough, most of those patients (17 out of 29 patients or 58.6%) had ovarian cancer. It is understood from the above observation that gynecological cancers especially ovarian cancer may have non-specific or misleading symptomatic presentation. Similarly, Mohyuddin et al. (2012) reported that miscellaneous symptoms like gastrointestinal upsets and loss of weight were present in 50% and 9% cases of ovarian cancer respectively. Furthermore, all the patients with the above symptoms had ovarian cancer only. According to Saeed and Akram (2012), vague symptoms of lower abdominal discomfort, urinary complaints, nausea and dyspepsia were seen in 42.6% patients with epithelial ovarian cancer. From the above discussion, it is also found that various possible symptoms may likely be present in case of ovarian cancer, whereas abnormal vaginal discharge might be the commonest presenting symptom of cervical cancer.

In this study, majority of the patients (61.0%) with gynecological malignancies had squamous cell carcinoma on histopathological examination, followed by adenocarcinoma (30.1%). Almost all the patients with cervical malignancy (95.7%) had squamous cell carcinoma, whereas adenocarcinoma dominated the ovarian tumors (88.9%). All the patients with endometrial malignancy had adenocarcinoma, whereas choriocarcinoma was evident on histopathology of all the patients with GTN. Two patients each of vulval malignancy and vaginal malignancy had squamous cell carcinoma and adenocarcinoma respectively. The above

findings are comparable to the observations made by Siyal et al. (1999), in a hospital-based study done in Pakistan, who noted invasive squamous cell carcinoma as the most common cervical cancer (85.0%) and the predominance of poorly differentiated adenocarcinoma among the ovarian tumors of surface epithelial origin. The most common tumor of uterine corpus was adenocarcinoma of endometrium, whereas squamous cell carcinoma dominated the tumors of vulva and vagina. Similarly, in a study by Nasreen (2002) done in a tertiary hospital in Pakistan, squamous cell carcinoma was evident in 83.4% cases of cervical cancer and 100.0% cases of vulval cancer, while adenocarcinoma (85.8%) was more frequent in endometrial cancer. Other studies around the world also show the nearly similar picture. Were and Buziba (2001) reported that 80.9% of the tumors were squamous cell carcinoma and 11.9% were adenocarcinoma histopathologically in a study done on cervical cancer patients in a hospital in Kenya. According to Odukogbe et al. (2004), epithelial ovarian cancer constituted about 76.2% of the ovarian cancer cases in a study done in a hospital of Nigeria in comparison to 88.9% in the present study. In an institution-based study done by Kamal et al. (2003) in Pakistan, endometrial adenocarcinoma was the most common uterine malignant tumor. In a study on vulval cancer done by Shamini et al. (2001) in a hospital in Singapore, squamous cell carcinoma was the most common histological type (80.0%). Recent studies from tertiary care centers of India and other developing countries (Agarwal et al., 2012; Mohyuddin et al., 2012; Yakasai et al., 2013) also reflect almost similar histological patterns of gynecological malignancies.

In the present study, almost 90% of the patients with gynecological malignancies were suffering from stage II (40.7%) and stage III (48.7%) malignancy (FIGO) at presentation. Almost all the patients (95.7%) with cervical malignancy had disease in stage II and above, and rest 4.3% patients had stage I disease. No one with ovarian malignancy had stage I disease, whereas more than two-third (70.4%) of the ovarian cancer cases were in stage III and IV. Two-third of the patients (66.6%) with endometrial malignancy presented with stage II disease. The findings of this study are nearly similar to that of Nasreen (2002) in a tertiary hospital in Pakistan, which had shown that 75.0% (each) of cases were in stage III and IV in ovarian cancer and stage II and III in cervical cancer, while in endometrial cancer, 42.8% of the cases had stage II lesion. Similarly, Mohyuddin et al. (2012) reported that almost all the patients (95.4%) with ovarian cancer presented in advanced stages (stage III and IV), while 62.5% patients with uterine cancer presented in early stages of disease (stage I and II) at a tertiary care hospital in Pakistan. In case of cervical cancer, 60% patients presented in stage II and III, whereas 40% patients presented in stage I. No one with cervical cancer presented with stage IV disease in comparison to the present study where 5.7% patients with cervical cancer presented in stage IV. A recently published study from India had shown that 60.7% patients with cervical cancer presented with stage II disease and above, whereas 24.1% patients had stage I disease at presentation and stage of

the disease was unknown in case of 15.2% patients. Most of the patients with ovarian cancer (68.4%) presented with stage III or IV disease, whereas most of the patients (53.8%) were in stage I and II in uterine cancer (Parveen et al., 2012). Another recently published study from India (Agarwal et al., 2012) had reported that 70.8% cervical cancer patients presented with stage II disease and above, whereas 29.2% patients presented in stage I. Surprisingly, a significant percentage of patients (57.1%) with ovarian cancer presented in stage I in the study by Agarwal et al. (2012), whereas only 36.7% patients presented in stage III and IV. Patients with uterine cancer mostly presented with the stage I and II (76.7%). From the present study and recent studies from tertiary care centers of India and Pakistan, it can be found that increasing number of patients are reporting with stage I disease in case of cervical cancer, which might be due to the increasing awareness regarding cervical cancer among the patients. However, in case of ovarian cancer, Agarwal et al. (2012) reported completely different picture compared to the other studies. This might be a manifestation of better awareness regarding ovarian cancer among the patients attending their center, which caters mostly urban and semi-urban population of New Delhi, the capital city of India. More than 95% of cervical cancer patients had tumor stage II and above, in the study done in a hospital in Kenya by Were and Buziba (2001), which corroborates with the present study. Similarly, a study done by Kidanto et al. (2002) on cancer of the cervix in a hospital of Tanzania had reported that more than 90% of cervical cancer cases were in advanced stages of the disease (stage IIb-IV). Nearly similar to the finding of the present study, in a study on patients with ovarian cancer, done by Rashid et al. (1998) in a hospital in Lahore, Pakistan, 62% of the patients presented with the stage III and IV. Even a recently published study from Lahore, Pakistan (Saeed and Akram, 2012) had reported that 88% of the patients with epithelial ovarian cancer presented with stage III or IV disease in a tertiary care hospital. Therefore, this study and available literature (Pal and Mittal, 2004; Varughese and Richman, 2010) reflect that late presentation at an appropriate health care facility is quite a common occurrence in the developing part of the world even today and the picture has not changed much over a decade. This indicates a poorly functioning health care system, e.g. poor referral pattern, limited health care resources like lack of proper screening facilities, lack of trained personnel in the rural areas, etc. This also points to the factors like poor knowledge of the people regarding the disease, especially its early warning symptoms and important risk factors, as well as poor health care seeking behavior of the patients, which need immediate attention in order to reduce the burden of the disease.

In this connection, the commitment of the government for cancer control in India by launching the National Cancer Control Program (NCCP) in 1975-76 is worth mentioning. The early initiatives of cancer control in India date back to 1971 when Government of India first developed its statement on cancer control. Subsequently, the program was revised three times. The most recent initiative is the integration of NCCP under the National Program for Prevention and Control of Cancer, Diabetes,

Cardiovascular diseases and Stroke (NPCDCS) in 2010. Despite these efforts, however, as stated by Sharma and Giri (2009), the cancer control in India has a sorry state. Though the cancer control program aims at providing the screening facilities at least at the district level, still it is on the paper only in many states of the country (Das and Patro, 2010). Under the program, Regional Cancer Centers (RCC) have been established in different parts of the country to provide comprehensive cancer care. Cancer care facilities are also available in a number of medical colleges as well as some private and charitable hospitals in the country. But the main contribution of the program has been lacking in the direction of prevention and early detection (Dinshaw et al., 2005). Studies have documented lack of awareness and less effective screening programs for common gynecological cancers in India (Roy and Tang, 2008; Agarwal et al., 2012; Parveen et al., 2012). There is no organized screening and awareness program for any of the common cancers in the country. Most cancer centers provide only opportunistic screening services (Dinshaw et al., 2005; Uma Devi, 2009). Very few attempts have been made by the professional medical societies and non-governmental organizations in involving themselves in anticancer activities. The political will to curb the burden of cancers is lacking and the administrative skills are not being utilized (Das and Patro, 2010). Need of the hour is to concentrate our sincere efforts to create awareness in the community to address these cancers.

In conclusions, it can be concluded from this study that most of the patients with gynecological malignancies in the developing countries present to a tertiary care hospital at a late stage of the disease. Therefore, early diagnosis of the disease is crucial to help in decreasing morbidity and mortality among the patients. It is obvious from this study that most of the patients with cervical malignancy present with stage II disease and above, whereas most of the ovarian cancer cases present with disease in stage III and stage IV to a tertiary care hospital. These observations can well be explained by another fact arising out of this study that ovarian cancer may often have non-specific or misleading symptomatic presentation in contrary to that of cervical cancer, which often presents with some specific symptoms. However, careful identification of possible warning symptoms of gynecological malignancies and prompt referral to an appropriate health care facility can often help in early diagnosis of the disease. In this regard, the role of health workers and primary care physicians may hold promise. Moreover, it is also observed that histopathological diagnoses in most of the cases of cervical malignancy and ovarian malignancy were squamous cell carcinoma and adenocarcinoma respectively. The treating physicians need to know the histological type and stage of the disease to choose the correct treatment options and to determine a prognosis of the disease. Therefore, there is a need for addressing and prioritizing resources towards educating women, health workers, primary care physicians, treating physicians and the broader community about these malignancies. Not only that, the presence of easily accessible adequate facilities for poor and rural populations at least at the community health center level for early detection and treatment of

the disease by optimal use of available resources, i.e. strengthening primary health care is essential to curb these cancers and to improve the survival of women of India. For that, strong political will, financial support and also the support from international agencies, governmental and non-governmental organizations and local institutions are very essential.

Acknowledgements

The authors would specifically like to thank the pathologists in the Department of Pathology, Nilratan Sircar Medical College and Hospital for performing histopathological examinations. The authors also wish to thank Profs. R. Biswas and A. Dasgupta, Department of Preventive and Social Medicine, All India Institute of Hygiene and Public Health, Kolkata, India for their support and valuable suggestions.

References

- Agarwal S, Malhotra KP, Sinha S, Rajaram S (2012). Profile of gynecologic malignancies reported at a tertiary care center in India over the past decade: Comparative evaluation with international data. *Indian J Cancer*, **49**, 298-302.
- Brand AH (2007). The woman with postmenopausal bleeding. *Aust Fam Physician*, **36**, 116-20.
- Chhabra S, Sonak M, Prem V, Sharma S (2002). Gynaecological malignancies in a rural institute in India. *J Obstet Gynaecol*, **22**, 426-9.
- Das S, Patro KC (2010). Cancer care in the rural areas of India: a firsthand experience of a clinical oncologist and review of literatures. *J Cancer Res Ther*, **6**, 299-303.
- Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India (2005). Manual for Health Professionals. Manuals for Training in Cancer Control. New Delhi: DGHS, MOHFW, GOI.
- Dinshaw KA, Shastri SS, Patil SS (2005). Cancer control programme in India: challenges for the new millennium. *Health Administrator*, **17**, 10-3.
- Dutta DC (2003). Text Book of Gynaecology including contraception, Fourth Edition. Calcutta: New Central Book Agency (P) Ltd.
- Department of Health, Social Services and Public Safety, Northern Ireland (2002). Epidemiology of Gynaecological Cancer in Northern Ireland. Guidance for the Management of Gynaecological Cancer. Belfast: DHSSPS.
- Kamal F, Farrukh R, Khalid AW, et al (2003). Pattern and frequency of various uterine tumors: a retrospective study over a period of 26 months. *Biomedica*, **19**, 36-9.
- Kidanto HL, Kilewo CD, Moshiro C (2002). Cancer of the cervix: knowledge and attitudes of female patients admitted at Muhimbil National Hospital, Dar es Salaam. *East Afr Med J*, **79**, 467-75.
- Laurvick CL, Semmens JB, Holman CD, Leung YC (2003). Ovarian cancer in Western Australia (1982-98): incidence, mortality and survival. *Aust NZ J Public Health*, **27**, 588-95.
- Mohyuddin S, Sultana N, Butt KA, Mohyuddin A (2012). Patterns of Gynaecological Malignancies at a Tertiary Care Hospital. *Pakistan Journal of Medical and Health Sciences*, **6**, 47. Retrieved April 10, 2013, from http://pjmhsnline.com/JanMarch2012/patterns_of_gynaecological_malignancies.htm
- Nasreen F (2002). Pattern of gynaecological malignancies in tertiary hospital. *J Postgrad Med Inst*, **16**, 215-20.
- Odukogbe AA, Adebamowo CA, Ola B, et al (2004). Ovarian cancer in Ibadan: characteristics and management. *J Obstet Gynaecol*, **24**, 294-7.
- Parveen S, Hakim S, Siddiqi S, Ahmad J (2012). A retrospective study of female genital tract malignancies. *J Med Sci and Tech*, **1**, 40-3.
- Pal SK, Mittal B (2004). Fight against cancer in countries with limited resources: the post-genomic era scenario. *Asian Pac J Cancer Prev*, **5**, 328-33.
- Roy B, Tang TS (2008). Cervical cancer screening in Kolkata, India: Beliefs and predictors of cervical cancer screening among women attending a women's health clinic in Kolkata. *India. J Cancer Educ*, **23**, 253-9.
- Rashid S, Sarwar G, Ali A (1998). A clinico-pathological study of ovarian cancer. *Mother & Child*, **36**, 117-25.
- Saeed S, Akram M (2012). Epithelial ovarian cancer: epidemiology and clinicopathological features. *The Professional Medical J*, **19**, 40-5.
- Sarkar M, Konar H, Raut DK (2012). Gynecological malignancies: epidemiological characteristics of the patients in a tertiary care hospital in India. *Asian Pac J Cancer Prev*, **13**, 2997-3004.
- Sarkar M, Konar H, Raut DK (2011). Knowledge and health care-seeking behavior in relation to gynecological malignancies in India: a study of the patients with gynecological malignancies in a tertiary care hospital of Kolkata. *J Cancer Educ*, **26**, 348-54.
- Sarkar M, Konar H, Raut DK (2010). Symptomatology of gynecological malignancies: experiences in the gynecology out-patient clinic of a tertiary care hospital in Kolkata, India. *Asian Pac J Cancer Prev*, **11**, 785-91.
- Sharma V, Giri S (2009). Cancer control in India- a sorry state. *Indian J Cancer*, **46**, 340.
- Senate Community Affairs References Committee, Commonwealth of Australia (2006). Inquiry into gynaecological cancers in Australia. Breaking the silence: a national voice for gynaecological cancers. Canberra: The Senate Standing Committee on Community Affairs.
- Sankaranarayanan R, Ferlay J (2006). Worldwide burden of gynaecological cancer: the size of the problem. *Best Pract Res Clin Obstet Gynaecol*, **20**, 207-25.
- Sultana N, Kiyani N (2005). Histopathological features of endometrial carcinoma. *J Coll Physicians Surg Pak*, **15**, 539-42.
- Shamini N, Tay EH, Ho TH (2001). Vulvar cancer – what do we know about our patients? *Singapore Med J*, **42**, 292-6.
- Siyal AR, Shaikh SM, Balouch R, Surahio AW (1999). Gynaecological cancer: a histopathological experiences at Chandka Medical College and Hospital Larkana. *Med Channel*, **5**, 15-9.
- Tropé CG, Makar AP (1991). Epidemiology, etiology, screening, prevention, and diagnosis in female genital cancer. *Curr Opin Oncol*, **3**, 908-19.
- Uma Devi K (2009). Current status of gynecological cancer care in India. *J Gynecol Oncol*, **20**, 77-80.
- Varughese J, Richman S (2010). Cancer care inequity for women in resource-poor countries. *Rev Obstet Gynecol*, **3**, 122-32.
- Were EO, Buziba NG (2001). Presentation and health care seeking behaviour of patients with cervical cancer seen at Moi Teaching and Referral Hospital, Eldoret, Kenya. *East Afr Med J*, **78**, 55-9.
- Yakasai IA, Ugwa EA, Otubu J (2013). Gynecological malignancies in Aminu Kano Teaching Hospital Kano: A 3 year review. *Niger J Clin Pract*, **16**, 63-6.