Effects of Radiotherapy on Sexual Activity in Women with Cervical Cancer

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Objective: *To assess changes in sexual activity in women treated for cervical cancer by radiotherapy over a period of 3 to 12 months.*
Material and Method: *Women treated for cervical cancer were selected at 3 to 12 months post-treatment. Main outcome measured were changes of sexual activity in sexual desire, arousal, orgasm, dyspareunia, frequency and satisfaction. Comparisons were made between after radiation and before radiation.*
Results: *The prevalence of sexual dysfunction increased in most patients treated with pelvic radiotherapy. There were significant reduction in sexual desire, arousal, orgasm, frequency of intercourse, and satisfaction after radiation. Increase in sexual pain was common after treatment, but was not significant in deep dyspareunia. Sexual frequency was significantly correlated with FIGO staging.*
Conclusion: *Sexual activities were significantly reduced following radiotherapy. Educational and counseling programs on sexual activity after treatment should be provided to the patients.*

Keywords: *Sexual activity, Radiotherapy, Cervical cancer*

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More than 6,200 Thai women each year are diagnosed with invasive cervical carcinoma[1]. Approximately three-fourths of the patients are treated with radiotherapy, especially in stage II to IV. After treatment all are at high risk for sexual dysfunction. Sexuality is an important and integral part of every woman's life. Sexual dysfunction results from both physical and psychological changes. Physical causes of sexual dysfunction may result from the disease itself or from treatment. Several studies have reported increased sexual dysfunction and decreased sexual activity after radiotherapy for cervical cancer[2-10].

The pathophysiology of sexual dysfunction in women receiving pelvic radiotherapy has multiple origins. Anatomical changes include distortion of the perineum and vagina. Vaginal length was shorter and elasticity was less than before treatment. Decreased vaginal lubrication and genital swelling during arousal were related to dysfunction. Radiation treatment causes ovarian dysfunction and fibrotic changes of pelvic soft tissues. Problems in Asian women should be assessed with careful consideration of cultural and religious restrictions on discussion of sexual topics.

The objective of this study was to assess changes in sexual activity in women treated for cervical cancer by radiotherapy and to determine changes in sexuality before and after radiation during 3 to 12 months following treatment.

Material and Method

This cross-sectional study was carried out from March 2004 to March 2005. The patients were recruited from the gynecologic oncology unit, Songklanagarind Hospital, Faculty of Medicine, Prince of Songkla University, Hat Yai, Thailand. The inclusion criteria was stage I to III cervical cancer patients aged 60 years or younger who were treated with radiotherapy, no evidence of recurrent disease and now living with her husband. All were sexually active prior to diagnosis of cervical cancer. The patients were given a participant information sheet which explained the objective of this study and signed a consent form.

The participants were interviewed recall sexual activity at the time of follow up only by the

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authors. Questions focused on sociodemographic data and sexual activity before and after 3 to 12 months of radiotherapy. Sexual activity consisted of frequency of vaginal intercourse, desire, arousal, orgasm, dyspareunia and satisfaction. Orgasm was measured by percentage of episodes of sexual intercourse in which orgasm was achieved divided by ten. Frequency was measured by number of times sexual intercourse occurred per month. Desire, arousal, dyspareunia, and satisfaction were also measured by using a visual analog scale. Differences in before and after assessment of sexual activity were described by subtracting activity after treatment from activity before treatment. A negative value indicates worsening for all parameters except dyspareunia, in which a positive result means increased pain or worsening.

Data was analyzed using Statistical Package for the Social Sciences (SPSS). Normal distribution of data was tested and paired t-test or Wilcoxon Signed Ranks test was used as appropriate. Categorical data was expressed by percentage and comparison was made using the chi-square test.

This study was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University.

Results

Ninety-nine patients were enrolled in this study. Sociodemographic data is shown in Table 1. The majority of participants had cervical cancer in FIGO stage IIB (73.7%). All sexual activity parameters significantly worsened except for deep dyspareunia as shown in Fig. 1 and Table 2. Mean visual analog scale differences in sexual desire, arousal and satisfaction were -2.11 $\pm$ 2.20, -2.48 $\pm$ 2.72 and -1.66 $\pm$ 2.30 respectively. Most participants reported the ability to obtain orgasm decreased after treatment. Dyspareunia was reported to worsen but only superficial pain significantly changed. Frequency of sexual intercourse decreased from 4.67 $\pm$ 3.79 (range 0-16) to 2.67 $\pm$ 3.17 (range 0-20) times per month. Most patients felt decreased sexual enjoyment. After radiotherapy some participants reported feeling better during sexual intercourse: desire (31.3%); arousal (26.3%); orgasm (31.3%); superficial dyspareunia (18.2%); satisfaction (45.5%) and increased frequency of intercourse (32.3%). Statistical analysis was used to determine the correlation between change in sexual activities and sociodemographic factors. The results showed that only FIGO staging was significantly associated with decreased frequency of vaginal intercourse, $p = 0.017$.

Table 1. Sociodemographic data of 99 participants

Characteristics		N
Age (years)	Mean $\pm$ SD	45.4 $\pm$ 6.8
	Range	31-60
Religion (%)	Buddhist	90.9
	Islam	8.1
	Christian	1.0
Menopausal status (%)	Premenopause	83.8
	Postmenopause	16.2
Occupation (%)	Housewives	18.2
	Employees	23.2
	Merchants	20.2
	Agriculturists	33.3
	Government officers	5.1
Parity (%)	0	5.1
	1-2	33.3
	> 4	11.1
FIGO Staging (%)	I	9.1
	II	76.7
	III	14.1

Table 2. Sexual activity of participants before and after therapy

Sexual activity	Before (mean±SD)	After(mean±SD)	p value
Desire (VAS)	5.02±2.81	2.91±2.72	0.032
Arousal (VAS)	5.59±3.09	3.10±2.71	0.004
Orgasm (%/10)	5.68±3.29	3.31±3.30	0.033
Superficial pain (VAS)	1.57±2.43	2.45±2.64	0.000
Deep pain (VAS)	1.09±2.16	1.15±2.04	0.620
Frequency (times/month)	4.67±3.79	2.67±3.17	0.003
Satifaction (VAS)	5.97±3.04	4.31±3.14	0.000

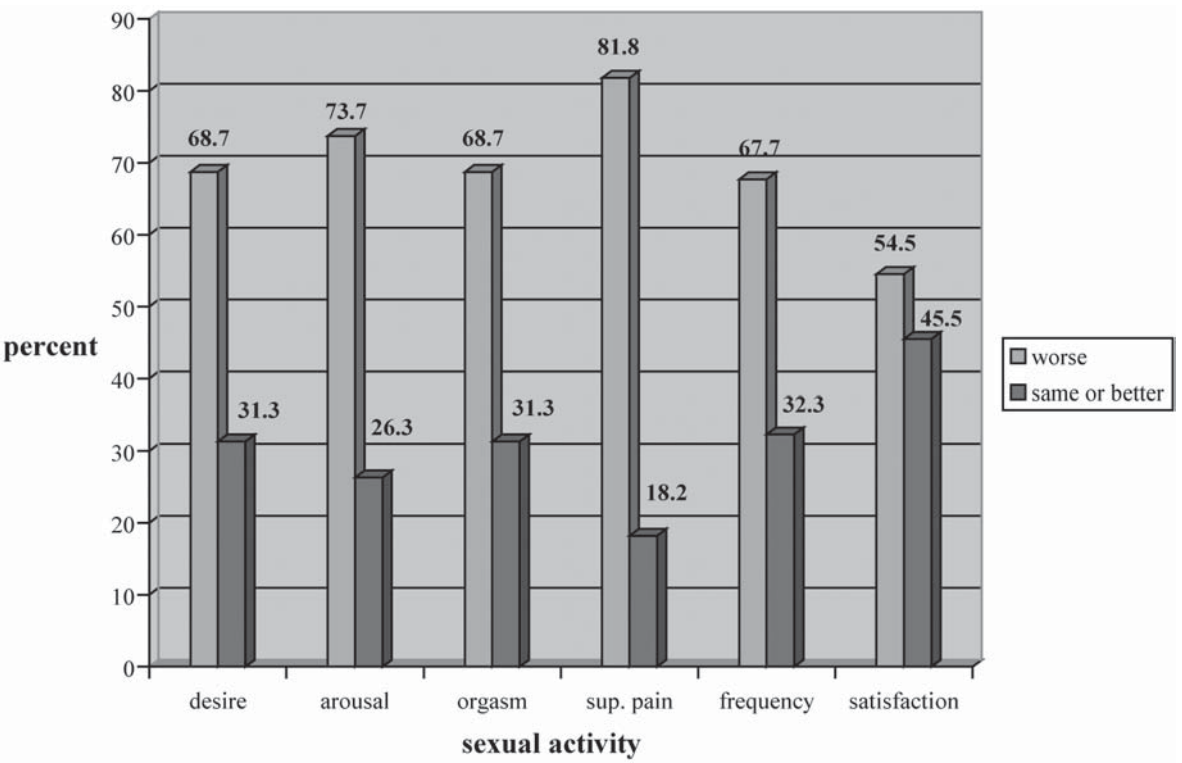

Fig. 1 Percentage of changes in sexual activity before and after radiotherapy

Discussion

External beam and intracavitary radiotherapy is an important element in the radical treatment and cure of cervical cancer[2]. The success of treatment is generally assessed on the basis of survival and incidence of long-term side effects, especially the bowel and urinary bladder complications. Some physicians may not be concerned about the patient's sexual functioning, although it is a very important part of life. This may be due to difficulty in talking with patients about various aspects of sex, especially in the setting of a conservative culture or lack of experience on the part of physicians.

Most participants had a good relationship with the interviewer. They appreciated talking about their sexual experiences and the effects of radiotherapy. Feelings of embarrassment were the main reasons that they did not discuss their problems with physicians. This report studied patients who had received pelvic radiotherapy after three months, in order to avoid acute effects of radiation such as nausea, vomiting, diarrhea and skin reaction. These acute effects can alter sexual behavior. This study showed that the prevalence of sexual dysfunction increased in most cervical cancer patients treated with radiotherapy, ranging from 54.5 to 81.8%. There were a significant reduction in sexual

desire, arousal, ability to obtain orgasm, frequency of vaginal intercourse, and satisfaction. An increase in sexual pain was common after treatment, but was not significant for deep dyspareunia ($p = 0.620$). Only frequency of sexual intercourse was found to be significantly correlated with FIGO staging. This result is similar to other reports. Seibel and colleagues[3] found nearly half of patients experienced significant decreases in frequency of sexual intercourse, enjoyment, orgasm, and sexual fantasy. Abitbol et al[4] studied the effect of different modes of therapy for invasive cervical carcinoma on subsequent sexual activity, reporting that sexual dysfunction developed after radiotherapy in about 80% of cases. Flay and colleaques[2] investigated the effects of pelvic radiotherapy and surgery on sexual function at 6 and 14 weeks post-treatment. That study showed half of patients had significant changes in sexual activity and satisfaction as a result of sexual dysfunction due to treatment and radiotherapy. Bruner et al[5] reported a decrease in sexual frequency (22%) and satisfaction (37%). Schover and colleagues[6] assessed sexual function in sixty-one patients with early stage cervical carcinoma treated by radiotherapy. Satisfaction, orgasm, and frequency of masturbation remained stable, whereas frequency of sexual intercourse with partner decreased significantly during this one year study.

These results mean that radiotherapy has adverse effects on sexual function and may be due to both anatomical changes and psychological distress[2,7]. Radiotherapy resulted in ovarian failure, thus premenopausal patients will have effects of menopause, including genital symptoms. Radiation therapy also directly affected the vascular and genital elastic tissue, resulted in shortening and narrowing of the vagina[8]. These tissue changes caused patients to experience dyspareunia or difficulty in penetration. As in the study of Bruner[5], the decrease in vaginal length and vaginal stenosis may explain in part the reduction in sexual enjoyment. Flay and colleagues[2] found a feeling of vaginal shorting was the most common reason for decreased sexual activity. Jensen et al[9] reported a reduction of vaginal dimension in about 50% of cases. Forty-five percent were never, or only occasionally, able to complete sexual intercourse. About 85% had loss of sexual desire, 35% had vaginal dryness symptoms, 55% had dyspareunia, and 30% were distressed with their sexual life.

Psychological factors may the most important causes of sexual dysfunction. Many patients in this report were worried about recurrence if they had sexual intercourse, and some worried about transmission of her cancer to the partner. Cull et al[7] concluded that psychological as well as physical factors were highly correlated with sexual outcome. Adelusi[10] reported that fear of recurrence of malignancy accounted for a marked reduction in the frequency of sexual intercourse after treatment. Flay[2] reported the concerns about coital bleeding or recurrence lead to decreased in sexual activity.

Some patients in this study reported feeling better about their sexual lives. The main reason was the decrease in fear of bleeding and lessening of sexual pain due to the cancer after treatment.

This study was developed in the context of a society in which sexual behavior is only talked about in secret. Some participants, especially those with low education, the elderly or the religiously strict were too ashamed to answer questions about their sexual life. Some did not understand about how to express their feeling in visual analog scales. This may influence the results of this study. The communication skills of the interviewer and simplified questionnaires may improve the quality of subsequent studies.

Conclusion

Sexual dysfunction is common following pelvic radiotherapy for cervical cancer. It may result from both anatomical and psychological change that affect patients' sexual activities, satisfaction and marital status. Physicians should have the knowledge and positive attitude to take care of patients with these problems. Assessment and treatment should aim to improve quality of life and minimize the morbidity of treatment and its consequence.

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การเปลี่ยนแปลงกิจกรรมทางเพศของผู้ป่วยมะเร็งปากมดลูกภายหลังรังสีรักษา

สมนึก แซ่หว่อง, ธนพันธ์ ชูบุญ

วัตถุประสงค์: *เพื่อศึกษาการเปลี่ยนแปลงกิจกรรมทางเพศของผู้ป่วยมะเร็งปากมดลูกภายหลังรังสีรักษา*
วัสดุและวิธีการ*: ศึกษาผู้ป่วยมะเร็งปากมดลูกภายหลังรังสีรักษาตั้งแต่ 3 เดือนถึง 1 ปี วิเคราะห์หาความเปลี่ยนแปลงของกิจกรรมทางเพศเปรียบเทียบระหว่างก่อนและหลังรับรังสีรักษา*
ผลการศึกษา: *ความตื่นตัวทางเพศ การถึงจุดสุดยอด ความต้องการทางเพศ ความถี่ในการมีเพศสัมพันธ์ ความพึงพอใจ ในเพศสัมพันธ์ และความเจ็บปวดในช่องคลอด ลดลงภายหลังรังสีรักษาอย่างมีนัยสำคัญ และเฉพาะระยะของโรค เท่านั้นที่พบว่ามีความสัมพันธ์กับความถี่ในการมีเพศสัมพันธ์*
สรุป: *กิจกรรมทางเพศของผู้ป่วยมะเร็งปากมดลูกภายหลังรังสีรักษาลดลงอย่างมีนัยสำคัญ ควรมีการให้คำแนะนำเรื่องเพศและการมีเพศสัมพันธ์ของผู้ป่วยมะเร็งปากมดลูกภายหลังรังสีรักษา*