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Public perception of risk-reducing salpingectomy for preventing ovarian cancer

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Objective
The fallopian tube is considered as the site of origin of serous ovarian cancer, and risk-reducing salpingectomy (RRS) has been proposed as a new and safe strategy for preventing ovarian cancer. However, little is known about the public perception of RRS.

Methods
We performed a questionnaire survey of 100 healthy female volunteers in November 2014. Questionnaire for this survey included questions on demographics, medical history, knowledge of and belief about RRS, and barrier to its application.

Results
Among 100 respondents, 71% did not realize the seriousness of ovarian cancer, 79% were unaware of the fact that salpinx was the origin of ovarian cancer, and 87% stated that they had never heard of RRS as a preventive method for ovarian cancer. Also, 98% of respondents replied that they had the right to be informed about RRS and the choice given. The respondents' fears about RRS included increased risk of surgical complications (68%), no benefit (8%), and increased surgical costs (3%).

Conclusion
Most general women were unaware of RRS as a method for preventing ovarian cancer in women at average risk. Therefore, physicians should discuss RRS with patients and consider this procedure at the time of abdominal or pelvic surgery.

Keywords: Data collection; Ovarian neoplasms; Public perception; Risk-reducing salpingectomy

Introduction

Ovarian cancer is the most fatal gynecologic malignancy, and it is the eighth leading cause of cancer death among Korean women [1,2]. More than two-thirds of ovarian cancers are detected at an advanced stage, when the ovarian cancer cells have spread far away from the ovarian surface and metastasized without specific symptoms in the patient [3]. Consequently, ovarian cancer is usually treated when it is at an advanced stage and the treatment outcome is very poor [4,5]. Therefore, prevention of ovarian cancer is very important. However, unfortunately, a reliable method for preventing ovarian cancer has not yet been developed [6,7].

Many theories have been proposed with respect to the cells of origin and mechanisms of carcinogenesis of ovarian cancer [8-12]. Recently, evidences from various studies suggest that the fallopian tube contributes to the development of ovarian cancer [13,14]. Many gynecologic oncologists recommend prophylactic salpingectomy or risk-reducing salpingectomy (RRS), as a novel prevention strategy, at the time of intra-abdominal surgeries such as hysterectomy or tubal ligation in women at average risk for ovarian cancer. Considering that RRS can pre-

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vent ovarian cancer, it is very important to inform the general female population that ovarian cancer is very fatal and RRS is the best way to prevent ovarian cancer. However, to the best of our knowledge, there is no study assessing the perception of the general female population about RRS.

Therefore, we performed a survey to determine the public perception and preference for RRS, to identify barriers to performing RRS among women, and to assess the need for providing information about RRS to the patients with average risk for ovarian cancer.

Materials and methods

After receiving approval from the institutional review board of Kangbuk Samsung Hospital (Seoul, Korea), we conducted a questionnaire survey of 100 general women who visited our center for a health check-up for evaluating the public perception about RRS in November 2014. Survey questionnaire included questions on respondent demographics, medical history, knowledge of and belief about RRS, and barriers to its application. Each question in the survey had a high content validity (content validity index, 0.8 to 1.0)

The sample size was calculated on the basis of a pilot survey of 20 guardians of patients who visited our center, in which the perception rate of RRS as a preventive method for ovarian cancer was 20% (4 out of 20 women). We assumed that the public perception rate was similar to the result of the pilot survey. After setting the type 1 error and tolerance at 5% and 8%, respectively, and allowing a 3% dropout rate, the sample size required was 100 respondents.

Data retrieved from survey responses were analyzed using descriptive statistics. SPSS ver. 13.0 (SPSS Inc., Chicago, IL, USA) was used for all statistical analyses. Qualitative data are presented as frequency (percentage). In cases of quantitative variables, after the normality of the data was checked, mean±standard deviation and median (range) were used to describe normal and non-normal distribution, respectively.

Results

Of the total 100 women who were enrolled in this study, all of the women completed the questionnaire. The demographics of respondents are shown in Table 1. The mean age of patients was 41.9 years (standard deviation, 11.1 years) and the mean body mass index was 21.7±2.6. None of the respondents had a personal or familial history of ovarian or breast cancer. Therefore, our study population compromised of women at average risk of ovarian cancer.

Table 2 presents the public perception of RRS. A considerable number of females (71%) had no knowledge about risk of ovarian cancer. Seventy respondents (70%) did not know that there was no proven screening method or vaccination available for women at average risk of ovarian cancer to date. Seventy-nine respondents (79%) did not know that salpinx was the origin of ovarian cancer. Also, eighty-seven respondents stated that they had never heard of RRS as a preventive method for ovarian cancer. When asked whether they had the right to be informed about RRS and choice given, 98% of respondents replied 'yes.' The questionnaire included a question

Table 1. Baseline demographics

Variable	Value
Age (yr)	41.9±11.1
Body mass index (kg/m^2)	21.7±2.6
Marital status	
Unmarried	23
Married	77
Children	
Without children	70
With children	30
Menopause status	
Pre-menopause	79
Post-menopause	21
Educational status	
High school or less	66
College or more	34
Economic status (US dollar/yr)	
>60,000	51
30,000–60,000	29
<30,000	20
Personal history of ovarian or breast cancer	
Yes	0
No	100
Family history of ovarian or breast cancer	
Yes	0
No	100

Data are presented as means±standard deviation for continuous variables or frequencies (percentages) for categorical variables.

Table 2. Public perception of RRS

Public perception of RRS	No.
Knowledge about the fact that ovarian cancer is very lethal	
Yes	29
No	71
Knowledge about no proven screening method or vaccination available	
Yes	30
No	70
Knowledge about the fact that salpinx is the cause of ovarian cancer	
Yes	21
No	79
Knowledge about RRS	
Yes	13
No	87
The right to be informed about RRS and the choice given	
Yes	98
No	2
Most common fear about RRS	
Increased intraoperative time	1
Increased risk of intraoperative complication	68
Increased cost of operation	3
No benefit	8
None	20
Willingness to undergo RRS	
Yes	46
No	54

RRS, risk-reducing surgery

on the most common fear about RRS among participants, to which most women answered 'increased risk of intraoperative complications' (68%), 'no benefit from RRS' (8%), or 'increased cost of operation' (3%). With respect to willingness to undergo RRS at the time of intra-abdominal surgeries, 46% of respondents replied 'yes' and 54% of respondents replied 'no.'

Discussion

In this study, we found that majority of respondents (87%) had no information about RRS as a preventive method for ovarian cancer. We also found that 98% of respondents wanted to be informed about the need and efficacy of RRS by the physicians if they received gynecologic surgeries. Therefore, physicians should inform the patients about RRS and should provide them their right of choice at the time of intra-abdominal or pelvic surgeries such as hysterectomy, myomectomy or appendectomy. To the best of our knowledge, this is the first study to assess the public perception of RRS.

Serous carcinomas are the most common histologic subtype accounting for 75% to 80% of epithelial ovarian cancers, and they are also found in the fallopian tube and primary peritoneal carcinoma [15-17]. Recent studies suggest that the fimbriae of the fallopian tube, not the ovary as believed previously, may play a critical role in the origin of serous ovarian cancer [13,14,17]. Therefore, prophylactic salpingectomy, performed at the time of intra-abdominal surgery with ovary preservation, has been proposed as a new and safe strategy to prevent ovarian cancer. Falconer conducted a retrospective, population-based cohort study of women who had previously undergone sterilization; salpingectomy; hysterectomy and bilateral salpingo-oophorectomy; or hysterectomy for a benign indication between 1972 and 2010 in Sweden [18]. They found that women who had undergone unilateral salpingectomy had a 28% lower risk of ovarian cancer, while those who had undergone bilateral salpingectomy had a 65% lower risk, compared with the general population. Moreover, the Society of Gynecologic Oncology (November 2013) announced that in women at average risk of ovarian cancer, RRS should also be discussed and considered with patients at the time of abdominal or pelvic surgery such as hysterectomy or tubal ligation [19]. Although we are not suggesting RRS to be performed alone without concomitant surgery for preventing the future ovarian cancer in general population with average risk for ovarian cancer, we now recommend performing RRS in all of the patients who undergo any gynecologic surgeries if they do not have a plan for further pregnancy.

In this study, most of the respondents (88%) understood the importance of RRS, but only half of them (46%) wanted to receive RRS when they would undergo abdominal or pelvic surgery, hysterectomy or in lieu of tubal ligation. The reasons for this discrepancy were thought to be that they had a little insight into ovarian cancer; more than two-thirds of ovarian cancers are detected at an advanced stage, and it is the most fatal gynecologic malignancy. Moreover, they had a fear of intraoperative complications due to the additional operation and concern regarding the increased cost of operation. A further study is needed to determine the complications of RRS.

All of the respondents replied that they want to receive complete information on how dangerous the ovarian cancer is and what RRS is. This result suggests that physicians should inform the patients about this new strategy and should provide them their right of choice. In cases of risk-reducing mastectomy, clinical recommendation by physicians was successful in approximately 60% of at risk-women undergoing surgery by 60 years of age [20,21]. Likewise, we believe that the perception of RRS will be increase by imparting education to the patients.

Limitations of this study include the following. First, we had a relatively small number of study participants, although it was based on the sample size calculation. Second, our study population included Korean women who were living in an urban area, and the results may not be applicable to other populations. Finally, there was lack of objective tools for assessing public perception of RRS.

In conclusion, although surgical removal of the fallopian tubes could be a viable option for reducing the risk of ovarian cancer, most respondents (87%) were not aware of RRS. This study suggests that physicians should discuss RRS with patients and consider this procedure at the time of abdominal or pelvic surgery, hysterectomy or in lieu of tubal ligation. A further study is needed to assess the true impact of this procedure on the incidence of ovarian cancer in a large population, as well as its incremental impact on surgical morbidity, operative time, and cost, because these issues have been identified as significant barriers to performing RRS in this study.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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