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Original Article

Comparison of early-stage primary serous fallopian tube carcinomas and equivalent stage serous epithelial ovarian carcinomas

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ABSTRACT

Objective: To investigate the outcome of patients with early-stage primary fallopian tube carcinomas (PFTC) and those of patients with equivalent-stage serous epithelial ovarian carcinomas (SEOC).
Materials and methods: A balanced and matched, case–control comparison was conducted in a university-based tertiary hospital database between 1978 and 2007. All PFTC and SEOC patients were treated with complete staging surgery followed by multiagent chemotherapy. One SEOC control was matched for each PFTC patient in a very uniform manner (characteristics and treatment). Disease-free survival (DFS) and overall survival (OS) were then compared using Kaplan-Meier analysis.
Results: Twenty-six paired patients were analyzed. Patients with PFTC were significantly older than the SEOC patients (58 years vs. 51 years, $p = 0.001$). In terms of recurrence, PFTC patients frequently had an extra-abdominal metastasis (3/4, 75%), in contrast to the SEOC patients, who did not (1/5, 20%). The 5-year DFS rate was similar in both groups (85% vs. 81%, $p = 0.05$), contributing to a similar OS rate (89% vs. 85%, $p = 0.50$). The median DFS and OS of patients with PFTC and SEOC were also similar without a statistically significant difference (125 months vs. 109 months, and 125 months vs. 122 months, respectively).
Conclusion: Our study demonstrated that the survival outcome of International Federation of Gynecology and Obstetrics (FIGO) I/II PFTC patients was similar to that of FIGO I/II SEOC patients, and both groups had a >80% 5-year DFS rate after complete staging surgery, followed by multiagent chemotherapy. This finding is worthy of being investigated.

Introduction

The relative rarity of primary fallopian tube carcinoma (PFTC) has presented a major challenge to the comprehensive study of the disease [1,2], and has contributed to uncertainty about the optimal management [3–5]. The traditional belief is that the survival rates of patients with PFTC are poor, and worse than those of patients with equivalent stages of serous epithelial ovarian carcinoma (SEOC) or other early-stage gynecologic malignancies [6]. However, this concept may not really reflect the real situation [7]. The reasons include the following. Among early-stage [International Federation of Gynecology and Obstetrics (FIGO) Stage I/II] patients, past estimates of outcome may be confounded by the lack of complete staging surgery, including para-aortic and pelvic lymphadenectomy in many cases [8], resulting in underestimated FIGO staging. The National Cancer Institute's Surveillance Epidemiology and End Results program reported that 47% of patients identified as having Stage I/II PFCT had neither a para-aortic nor a pelvic lymph node

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evaluation [8]. In addition, one comparison study showed the conflicted data, which demonstrated better outcomes of early-stage PFTC than those of SEOC, not only for the 5-year overall survival (OS; 95% vs. 76%, $p = 0.02$), but also 5-year progression-free survival rates (79% vs. 65%, $p = 0.04$) [7]. However, since the majority of high-grade SEOCs were recently suggested to start in the fallopian tube [9], we could imagine that the outcomes would be similar.

Therefore, we conducted this retrospective case–control trial to prove the above hypothesis.

Materials and methods

Literature review

An extensive literature review up to January 20, 2014 was conducted. We used the following strategies to identify the publications addressing survival of patients with PFTC and comparison between PFTC and serous ovarian carcinoma. The term "primary fallopian tube carcinoma and survival" was used to search PubMed (http://www.ncbi.nlm.nih.gov/pubmed/?term=primary+fallopian+tube+carcinoma%2C+survival) and the term "comparison, primary fallopian tube carcinoma, serous ovarian carcinoma" in place of the term "primary fallopian tube carcinoma and survival" (http://www.ncbi.nlm.nih.gov/pubmed/?term=comparison%2C+primary+fallopian+tube+carcinoma%2C+serous+ovarian+carcinoma) was used for relevant articles to identify 344 and 10 published articles, respectively. Appropriate references cited by the retrieved studies were also identified. Then, the title and subtitle were read to exclude inappropriate or unrelated articles. Case reports (patient number < 10) were also excluded. Relevant abstracts were read to obtain data addressing the 5-year disease-free survival (DFS) rate or 5-year OS rate of early-stage (FIGO I and II) PFTC.

Study population of the Taipei Veterans General Hospital

The cases ($n = 79$) reported between 1978 and 2007 [10] were defined as those of patients identified as having PFTC per diagnostic criteria revised by Sedlis [11] including: (1) the main tumor arises from the endosalpinx; (2) the histological pattern reproduces the epithelium of tubal mucosa; (3) the transition from benign to malignant tubal epithelium is demonstrable; and (4) the ovaries or endometrium are either normal or contain a tumor that is smaller than the tumor in the tube. Additional inclusion criteria included only a serous histology ($n = 67$) and that all patients were treated with complete staging surgery (cytology, total hysterectomy, bilateral salpingo-oophorectomy, retroperitoneal lymphadenectomy, omentectomy, appendectomy, and multiple biopsies or excisions for tumors), followed by multiagent chemotherapy ($n = 58$). Because the purpose of this study was focused on early-stage PFTC, women with advanced-stage PFTC (FIGO III and IV) were excluded. Fig. 1 shows how we obtained the final study population. The original pathology, including the matched early-stage SEOC, was reviewed by one author (gynecologic pathologist) and another independent colleague. After obtaining approval from the Institutional Review Board, the hospital course and clinical follow-up data were analyzed. All controversial diagnostic cases were excluded from this study. Because this study was a retrospective chart review, no informed consent was needed. The follow-up period was calculated from the date of initial surgery to the date of last follow-up (October 31, 2013) or the time of death. Cross-tabulations, descriptive statistics and recurrence data were prepared with the SAS statistical package, version 9.3 (SAS Institute, Cary, NC, USA). The cut-off value of age and preoperative serum level of carbohydrate antigen (CA) 125 was calculated using a receiver operating characteristic curve. Survival curves were estimated by the Kaplan-Meier method. Comparisons of all survival curves were done using

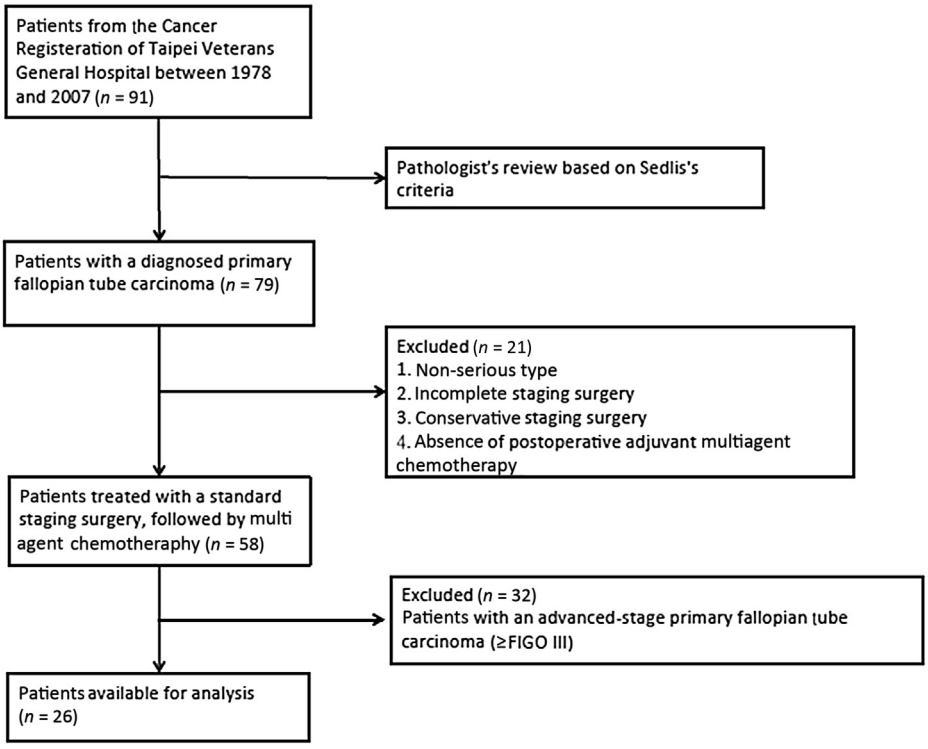

Fig. 1. Flowchart.