Editorial

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Nerve-sparing radical hysterectomy: time for a new standard of care for cervical cancer?

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See accompanying article by Roh, Kim and colleagues on page 90 and 100.

Radical hysterectomy (RH) is widely performed to treat invasive cervical cancer. This treatment often causes damage to the pelvic autonomic nerves, which may result in difficulties in passing urine and/or storage of urine after the operation and impair the quality of life of patients by causing both physical and mental stress.

The concept of nerve-sparing radical hysterectomy (NSRH) as a modification of Okabayashi RH was pioneered by Kobayashi [1] based on preservation of the pelvic splanchnic nerves and the pelvic plexus by separation of the vascular (containing the deep uterine vein) and neural parts during dissection of the lateral parametrium. The technique for systematic preservation of the pelvic autonomic nerve system, which contains the hypogastric nerves, the pelvic splanchnic nerves, the pelvic plexus and the bladder branches of the pelvic plexus, was further improved and described in more detail by Sakamoto and Takizawa [2] in 1988 and by Sakuragi et al. [3] in 2005. Removal of lymph node-containing adipose tissue in the paracervix/parametrium to expose pelvic nerves and to eradicate occult tumor cells in the area has been facilitated by liposuction techniques described by Fujiwara [4] in 1984 and Hockel et al. [5] in 1998. Studies on the anatomical bases [3,6-8] and embryological bases [9] of NSRH have contributed to progress in this surgery.

NSRH seems to have become a popular treatment that minimizes postoperative functional morbidity without compromising the oncological outcome for cervical cancer patients. For NSRH to become a standard and widely used treatment for invasive cervical cancer in clinical practice, we need to establish standardized surgical procedures to identify and preserve the pelvic nerve system, to conduct a systematic review of published retrospective and prospective studies, and to conduct large-scale prospective studies on functional and oncological aspects of NSRH.

Recently, three systematic reviews/meta-analyses on NSRH have been published in succession by Long et al. [10], Aoun and van Velthoven [11], and Basaran et al. [12]. It has been criticized that there is no standardized technique for NSRH, and controversies still exist about its oncological safety. In this issue of *Journal of Gynecologic Oncology*, Kim et al. [13] presented results of systematic review and meta-analysis on the effect of NSRH on postoperative bladder function. Two randomized controlled trials (RCTs), 7 prospective cohort studies, and 11 retrospective cohort studies were included. They defined the pelvic autonomic nerves that should be preserved in NSRH regardless of the technique. Again, they noted the necessity for a large-scale prospective RCT.

Both functional superiority and oncological inferiority of NSRH should ideally be verified by a large RCT comparing conventional RH and NSRH. There is controversy about whether an RCT is the optimal method to verify surgical treatment for several reasons [14,15]. Although RCTs are generally acknowledged to provide the highest level of clinical evidence, special difficulties are connoted in RCTs. One of those is that there should already be sufficient experience with the new procedure so that complication rates have stabilized, and participating surgeons are equally comfortable with all procedures being studied [14]. In this issue of the journal, Roh et al. [16] reported on an RCT comparing conventional RH and NSRH, which included 92 cervical cancer patients. This is the largest RCT on the efficacy of NSRH until now. In the RCT reported by Roh et al. [16], the new surgery, that is NSRH, was

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performed by two surgeons who were skilled in conventional surgery and had one year of experience in NSRH before the study was conducted. In their paper, the method to identify and separate each part of the pelvic nerve system from the paracervix is adequately described. Follow-up duration was long enough and 10-year disease-free survival rate was evaluated. Postoperative bladder function was assessed by both the objective means of urodynamic studies and subjective symptoms. NSRH appears to be effective in preserving bladder function without sacrifice of oncologic safety.

In summary, there seems to be some difficulties in obtaining reliable evidence for the efficacy of NSRH because the techniques are not standardized and heterogeneity of patient characteristics exists in published studies. However, the papers on NSRH in this issue of *Journal of Gynecologic Oncology* suggest that accumulation of surgical experience and generation of clinical evidence have progressed steadily and that NSRH will soon become a new standard of care for invasive cervical cancer.

CONFLICT OF INTEREST

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

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