Nerve-Sparing Radical Hysterectomy

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Conventional Radical Hysterectomy

- An effective approach for the management of early-stage cervical carcinoma
- 5-year survival rates of more than 90%
- Frequently causes pelvic organ dysfunction, especially bladder dysfunction up to 85% of cervical cancer survivors
Lymphedema and bladder-emptying difficulties after radical hysterectomy for early cervical cancer and among population controls


<table>
<thead>
<tr>
<th>Aspects assessed</th>
<th>Patients (n = 93)</th>
<th>Controls (n = 350)</th>
<th>Age-adjusted RR (with 95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete bladder evacuation more than half of time</td>
<td>15/93 (16%)</td>
<td>8/343 (2%)</td>
<td>8.9 (3.2–20.7)</td>
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<tr>
<td>Straining to initiate micturition, more than half of times</td>
<td>15/93 (16%)</td>
<td>4/342 (1%)</td>
<td>21.8 (4.7–62.0)</td>
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<td>Defecation infrequently, three or fewer times each week</td>
<td>16/87 (18%)</td>
<td>40/340 (12%)</td>
<td>1.5 (0.8–2.6)</td>
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<tr>
<td>Constipation, more than half of the time</td>
<td>8/90 (9%)</td>
<td>12/340 (4%)</td>
<td>2.6 (1.1–6.2)</td>
</tr>
<tr>
<td>Abdominal pains, every week or more</td>
<td>9/92 (10%)</td>
<td>18/343 (5%)</td>
<td>1.8 (0.8–3.9)</td>
</tr>
</tbody>
</table>
Lymphedema and bladder-emptying difficulties after radical hysterectomy for early cervical cancer and among population controls


Percentage = The risk each woman was willing to take to avoid surgery

77

0% 1% 5% 10% 30% 100%
The key for the nerve-sparing during RH

- The first step: identify the superior hypogastric plexus (SHP)
- The second step: identify the hypogastric nerves (HN)
- The third step: identify the inferior hypogastric plexus (IHP)
- The last part of nerve-sparing: preservation the bladder branch of the IHP
The diagram illustrates various anatomical structures and nerves. A table lists surgical steps that may involve injuries to the nerves:

- **HN**: Resection of USL
- **PSN**: Dissection of LN
- **PP**: Resection of RVL and Vagina
- **VB**: Resection of VUL
Preservation the bladder branch of the IHP

Preservation the bladder branch of the IHP

Oncologic Effectiveness of nerve-sparing Radical Hysterectomy in Cervical Cancer

- Retrospective study
  - 1b2, IIa2, IIb received NACT (Neoadjuvant chemotherapy)
  - Nerve-sparing radical hysterectomy (NSRH): 325 (49.8%), median follow-up: 38 months
    - (89% NACT)
  - Conventional RH: 327 (50.2%), median follow-up: 123 months
    - (21.1% NACT)
- Pelvic lymph node dissection

Ditto A, J. Gynecol Oncol 2018
Oncologic Effectiveness of Nerve-sparing Radical Hysterectomy in Cervical Cancer

Five-year DFS; NSRH (%77.7) vs RH (%84.5) P=0.02

Five-year OS; NSRH (%90.4) vs RH(%84.9) p=0.13

Ditto A, J. Gynecol Oncol 2018
Oncologic Effectiveness of Nerve-sparing Radical Hysterectomy in Cervical Cancer

5 yıllık DFS ; NSRH (%76.6) vs RH(%75.6) P=0.98

5 yıllık OS ; NSRH (%89.3) vs RH(%79.4) P=0.67

Ditto A, J. Gynecol Oncol 2018
Nerve-sparing radical hysterectomy versus conventional radical hysterectomy in early-stage cervical cancer. A systematic review and meta-analysis of survival and quality of life

- Stage IA2, IB, IIA and IIB cervical cancer
- Meta-analysis (n = 27 studies)
- 2, 3 and 5 year overall survival did not differ in either group
- The time to micturition after surgery was significantly shorter in the NSRH group
- Lack of adequate data for statistical analysis on quality of life
Nerve-sparing radical hysterectomy versus conventional radical hysterectomy in early-stage cervical cancer. A systematic review and meta-analysis of survival and quality of life

Van Gent M:D:J:M. Maturitas 2016
Comparison of Nerve-Sparing Radical Hysterectomy and Radical Hysterectomy: a Systematic Review and Meta-Analysis

- 20 studies
- NSRH technique had a significantly lower risk of bladder dysfunction
- NSRH had a significantly shorter mean time of catheterization
- No difference on constipation
- NSRH had shorter mean time of first flatus and first defecation
- The validated Female Sexual Function Index (FSFI) questionnaire
  - NSRH had significant higher FSFI scores
- Local recurrence rate of NSRH and RH technique was similar
- No differences between the overall recurrences of NSRH and RH

Xue Z. Cell Phys and Bioch. 2016
Comparison of Nerve-Sparing Radical Hysterectomy and Radical Hysterectomy: a Systematic Review and Meta-Analysis

Xue Z. Cell Phys and Bioch. 2016

(a) bladder dysfunction, (b) time of catheterization
Comparison of Nerve-Sparing Radical Hysterectomy and Radical Hysterectomy: a Systematic Review and Meta-Analysis

(a) anorectal function   (b) sexual function

Xue Z. Cell Phys and Bioch. 2016
Comparison of Nerve-Sparing Radical Hysterectomy and Radical Hysterectomy: a Systematic Review and Meta-Analysis

Xue Z. Cell Phys and Bioch. 2016

(a) local recurrence, (b) overall recurrence
Efficacy and oncologic safety of nerve-sparing radical hysterectomy for cervical cancer: a randomized controlled trial

- Prospective Randomized controlled trial
- Ib1, Ib2 and Ila Figo stage
- NSRH : 46 patients
- CRH : 40 patients
- Radicality (width and length of parametrium, length of resected vagina, harvested LNs) similar.
- Resected nerve bundles significantly lower in the NSRH

Roh Ju-Won, J Gynecol Oncol 2015
Efficacy and oncologic safety of nerve-sparing radical hysterectomy for cervical cancer: a randomized controlled trial

Roh Ju-Won, J Gynecol Oncol 2015

Oncologic safety

![Graphs showing disease-free and overall survival rates for CRH and NSRH, with p-values of 0.86 and 0.38, respectively.](image-url)
Efficacy and oncologic safety of nerve-sparing radical hysterectomy for cervical cancer: a randomized controlled trial

Evaluation of urinary function

Roh Ju-Won, J Gynecol Oncol 2015
Basaran and colleagues:

- the number of patients needed to prove non-inferiority of NSRH to RH with regard to recurrence would be between 4,300 and 1,000 depending on the expected risk of recurrence (5% and 20%, respectively)
- There will always be women in whom radical surgery is first choice of treatment
- In these women the nerve sparing techniques should be considered