Forum for Nuclear Cooperation in Asia (FNCA)
- Radiation Oncology Project-

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Saitama Medical University, International Medical Center
FNCA Radiation Oncology Project (since 1993)

Participating countries

KAZ  MNG  KOR  JPN
BAN  CHN  MYS  PHL
THA  VNM  IND
Purposes of the Project

1) To establish optimal treatment protocols of radiotherapy and chemotherapy for predominant cancers in Asia.

2) To improve the quality of radiotherapy in FNCA MCs.

3) To improve treatment outcomes for predominant cancers.
Project Activities

1) International multi-center clinical studies of RT/CCRT for predominant cancers in Asia

2) Physical QA/QC audit of radiotherapy

3) Workshop / Open Lecture / Technical Visit

4) Collaboration of FNCA and IAEA/RCA
## FNCA Clinical Studies of RT and CCRT

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<tbody>
<tr>
<td>Standardization of RT for Cervical Cancer (CERVIX-I)</td>
<td>Follow-up</td>
<td>Evaluation</td>
<td>Results published in Green Journal</td>
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<td>AHF for Cervical Cancer (CERVIX-II)</td>
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<td>CCRT for Cervical Cancer (CERVIX-III)</td>
<td>Survey / Phase I</td>
<td>Registration</td>
<td>Follow-up</td>
<td>Evaluation</td>
<td>Results published in Red Journal</td>
<td>Follow-up report in Red Journal</td>
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<td>CCRT + PALN-RT for Cervical Cancer (Cervix-IV)</td>
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<td>CCRT + 3D-IGBT for Cervical Cancer (Cervix V)</td>
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<td>Survey / Training Drafting protocol</td>
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<td>CRT for Advanced NPC (any T N2-3) (NPC-I)</td>
<td>Survey / Phase I</td>
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<td>Hypofractionated RT for Breast Cancer (BREAST I: BCT/PMRT)</td>
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FNCA Clinical Trials for Cervical Cancer

Cervix-I: Standardization of RT

Cervix-II: Accelerated Hyperfr. RT

Cervix-III: CCRT

Cervix-IV: CCRT with Extended-Field RT

Cervix-V: CCRT with 3D-IGBT
Cervix-I

Standardization of RT for locally advanced cervical cancer among FNCA countries

Period: 1996-2003
Sample size: 210 cases
Standardized Protocol of Radiation Therapy (Cervix-I)

**EBRT:** 1.8-2Gy/fr, Whole Pelvis: 30-40Gy + Central Shielding: 10-20Gy

**ICBT:**
- HDR treatment: 20-28Gy/4fr (5-7Gy/fr)
- LDR treatment: 40-45Gy/1-2fr
Summary of Cervix-I

210 patients with Stage IIIB cervical cancer were treated with “standardized protocol” in 8 Asian counties. Favorable treatment results - 5-year OS: 53%

Many problems and difficulties in developing countries
- patient enrollment
- imaging modalities
- poor compliance (minor & major deviation: 30%)
- poor follow-up rate (5-y rate: 71%)

In spite of these problems, this study provided an important opportunity for mutual understanding the status of RT. The experience was important to plan the following studies.
Cervix-III

CCRT for locally advanced cervical cancer

Period: 2003-2010
Sample size: 120 cases
**Protocol treatment (Cervix-III)**

**EBRT**: 1.8-2Gy/fr, Whole Pelvis: 30-40Gy + Central Shielding: 10-20Gy

**ICBT**
- **HDR treatment**: 24-28Gy/4fr (6-7Gy/fr)
- **LDR treatment**: 40-45Gy/1-2fr

**Chemotherapy**
- **Cisplatin**: 40 mg/m²/weekly, week 1- week 5
# Treatment results of RT/CCRT GOG 85/120 and FNCA Cervix-III

<table>
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<tr>
<th>Study</th>
<th>Eligible stage</th>
<th>PAN biopsy</th>
<th>Treatment</th>
<th>No. of Pts.</th>
<th>5-y LC (%)</th>
<th>5-y OS (%)</th>
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<td>IIB-IVA</td>
<td>yes</td>
<td>RT+CDDP/5FU</td>
<td>177</td>
<td>NA</td>
<td>63</td>
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<td>IIB: 61.0-62.8%</td>
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<td>RT+HU</td>
<td>191</td>
<td>NA</td>
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<td>III: 33.5-36.1%</td>
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<td>VIA: 2.8-3.7%</td>
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<td>GOG 120²)</td>
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<td>RT+CDDP</td>
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<td>78</td>
<td>60</td>
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<td>IIB: 46.2-57.4%</td>
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<td>RT+CDDP/5FU/HU</td>
<td>173</td>
<td>79</td>
<td>61</td>
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<td>III: 40.3-50.2%</td>
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<td>177</td>
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<td>FNCA³)</td>
<td>IIB-IIIB</td>
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<td>RT+CDDP</td>
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<td>IIB: 50%</td>
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<td>IIIB: 50%</td>
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Summary of Cervix-III

120 patients with Stage IIB-IIIB cervical cancer were treated with CCRT in 8 Asian countries.

Favorable treatment outcomes were obtained.
- 5-year LC and OS: 77% and 57%
- 5-year grade 3-4 late complications: 7%

The quality of the study was improved dramatically.
- Diagnostic imaging (use of CT: 81%)
- Treatment compliance (no major violation)
- Follow-up rates (5-y rate 97%)

Cervix-III protocol has become one of the standard Protocol in FNCA member countries.
Background
3D-IGBT using CT/MRI has recently been increasingly used for cervical cancer treatment in Asia.

Purposes
To evaluate the efficacy and toxicity of CCRT with 3D-IGBT for locally advanced cervical cancer in Asia.

Cervix-V: New clinical trial (2017~)
Synergetic effects of FNCA and IAEA/RCA

1) Treatment information obtained through FNCA clinical trials were lectured at IAEA/RCA Regional Training Courses (RAS 6053).

2) Radiation Oncologists and Medical Physicists in the FNCA MCs were trained in the knowledge and techniques for 3D-IGBT at IAEA/RCA RTCs (RAS 6062).
**Project outcomes/achievements in FNCA MCs**

1. **Treatment protocol for cervical cancer** has become the standard treatment protocol in FNCA MCs.

2. **FNCA QA/QC programs** have improved quality of radiotherapy in FNCA MCs.

3. **Radiation Oncologists and medical physicists** in FNCA MCs have been trained through conducting FNCA clinical studies and at IAEA/RCA RTCs.

4. **Network established by FNCA RO project** has potential to promote and strengthen further international cooperation in the field of RO in Asia.