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Comparative Study of Long-Term Efficacy and Safety of neoadjuvant chemotherapy before radical surgery versus concurrent chemoradiotherapy for FIGO 2018 stage IB3/IIA2 cervical squamous cell carcinoma: a propensity score-matched analysis

Renxian Xie[1,2], Keyan Xie[2], Yizhou Zhan[1], Yanchen Ji[1,2], Jianzhou Chen[1], Chuangzhen Chen[1]

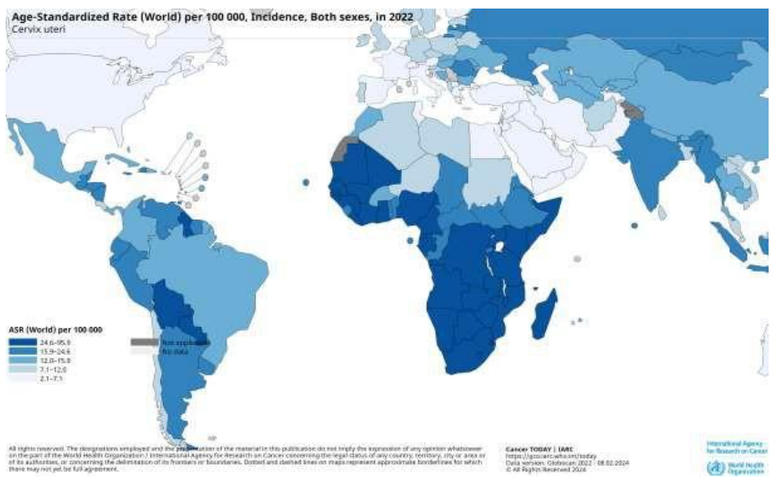
[1] Department of Radiation Oncology, Cancer Hospital of Shantou University Medical College, Shantou, P.R. China.
[2] Shantou University Medical College, Shantou, P.R. China.

INTRODUCTION

√ The incidence and mortality rates from cervical cancer in resource-limited regions are higher than affluent regions and 70% of patients have local infiltration or metastasis[1-3].

√ Locally advanced cervical cancer (LACC) is defined as Stage IB3/IIA2 cervical cancer according to the FIGO 2018 staging, which requires more aggressive and nuanced treatment approaches than early-stage cancer.

√ The National Comprehensive Cancer Network (NCCN) recommends concurrent chemoradiotherapy as the standard therapy for LACC. However, the standard treatment for LACC is still controversial, and the patients' survival rate continues to be discouraging.



AIM

To assess the long-term efficacy and safety outcomes of neoadjuvant chemotherapy before radical surgery (NCRS) versus 3DCRT-based concurrent chemoradiotherapy (CCRT) for patients with FIGO 2018 stage IB3/IIA2 cervical squamous cell carcinoma, in the specific context of a resource-constrained environment where advanced radiation therapy techniques are unavailable.

METHOD

Total patients (354)[4]

Patients with FIGO 2018 stage IB3/IIA2 cervical squamous cell carcinoma who had treatment at Tianjin Central Hospital of Gynecology Obstetrics between January 2011 and December 2016.

Excluded patients (54)

- 45 patients were histologically adenocarcinoma or adenosquamous carcinoma (AC/ASC).
- 10 patients received adjuvant chemotherapy or adjuvant chemoradiotherapy after surgery or CCRT

- Propensity score matching (PSM)
- Kaplan-Meier curves, log-rank tests
- Cox proportional hazards regression analyses
- Chi-squared tests

137 patients	Neoadjuvant chemotherapy + Radical hysterectomy and lymphadenectomy
163 patients	External pelvic radiotherapy （EBRT) + Concurrent chemotherapy + High-dose brachytherapy

RESULTS

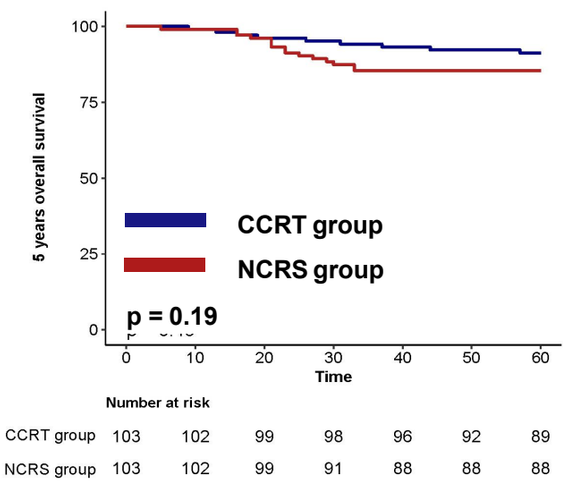


Figure 1. 5 year overall survival after PSM

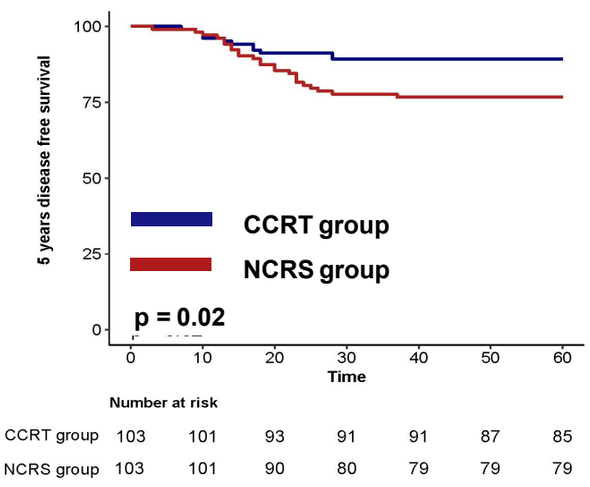


Figure 2. 5 year disease free survival after PSM

Table 1. Cox multivariate analyses of the OS and DFS after PSM

Characteristic	After matching			
	OS		DFS	
	aHR(95%CI)	p-value	aHR(95%CI)	p-value
Age >46 years	1.79 (0.79~4.06)	0.161	0.85 (0.44~1.63)	0.623
Anemia before treatment	0.69 (0.2~2.34)	0.549	1.6 (0.72~3.56)	0.25
Initial tumor size >4.3 cm	8.89 (0.91~87.14)	0.061	3.39 (0.94~12.26)	0.063
Histologic grade G2-3	1.74 (0.59~5.17)	0.318	5.3 (1.27~22.09)	0.022*
FIGO 2018 stage (IB3 vs. IIA2)	8.89 (1.19~66.35)	0.033*	2.95 (1.03~8.46)	0.043*
Treatment (NCRS vs. CCRT)	2.11 (0.93~4.83)	0.076	2.41 (1.21~4.79)	0.012*

Table 2. Pattern of recurrence after PSM

Recurrence Site	After matching		
	NCRS group(n=103)	CCRT group(n=103)	p-value
Recurrence, n (%)	21 (20.4)	10 (9.7)	0.032*
Local	8 (7.8)	3 (2.9)	0.121
lower vaginal	3 (2.9)	1 (1)	0.621
parametrial	4 (3.9)	2 (1.9)	0.683
bladder	1 (1)	0 (0)	1
Distant, n (%)	12 (11.7)	6 (5.8)	0.139
Supraclavicular lymph node metastasis	3 (2.9)	2 (1.9)	1
Isolated pulmonary metastatic (≤3 lesions)	0 (0)	0 (0)	1
Multiple pulmonary metastatic (>3 lesions)	9 (8.7)	4 (3.9)	0.152
Local plus distant, n (%)	1 (1)	1 (1)	1

Table 3. Early and late complications after PSM

Result (n)	After matching		
	NCRS group(n=103)	CCRT group(n=103)	p-value
Early complications, n(%)	37 (35.9)	82 (79.6)	<0.001*
Grade 1-2	35 (34)	70 (68)	<0.001*
myelosuppression	17 (16.5)	30 (29.1)	0.031*
Gastrointestinal	11 (10.7)	50 (48.5)	<0.001*
Urinary	15 (14.6)	49 (47.6)	<0.001*
Grade 3	3 (2.9)	16 (15.5)	0.002*
myelosuppression	0 (0)	8 (7.8)	0.007*
Gastrointestinal	3 (2.9)	5 (4.9)	0.721
Urinary	0 (0)	3 (2.9)	0.246
Late complications, n(%)	37 (35.9)	30 (29.1)	0.298
Grade 1-2	35 (34)	28 (27.2)	0.29
Gastrointestinal	0 (0)	7 (6.8)	0.014*
Urinary	31 (30.1)	2 (1.9)	<0.001*
Symptomatic vaginal stenosis	0 (0)	12 (11.7)	<0.001*
pelvic lymphedema	4 (3.9)	14 (13.6)	0.014*
Grade 3	2 (1.9)	2 (1.9)	1
Gastrointestinal	0 (0)	2 (1.9)	0.498
pelvic lymphedema	2 (1.9)	0 (0)	0.498

CONCLUSION

In patients with FIGO 2018 stage IB3/IIA2 cervical squamous cell carcinoma, **CCRT based on 3DCRT seems to be a better option** compared to NCRS in a resource-limited setting where only a 3DCRT radiotherapy technique was available.

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If you have any question, please feel free to contact us! **First author's email: 21rxxie@stu.edu.cn**