Cervical cancer stage IIB-IVA radiation therapy clinical responses based on spectral pulsed wave Doppler

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Objective: To examine the relationship between Doppler spectralultrasound images of Transrectal PulseWave Doppler with the clinical response of external radiation therapy for locally advance dcervical cancer (IIB-IVA).

Method: Methods: The study used a prospective cohort study involving 60 samples of patients with stage IIB-IVA cervical cancer. Doppler Pulsewave checks use transrectal probes. Measurements of tumor mass and clinical assessment were performed before and after external radiation to assess the therapeutic response. Samples were grouped on Doppler pulsewave examinations into good and bad vascularizations which were then followed to assess the therapeutic response divided into good clinical response and poor clinical response.

Result: Of the 60 samples, 2 patients were unable to continue the study so that the clinical response was obtained as much as 46 people (79.3%) and bad clinical response of 12 people (20.7%). The group of bad clinical responses as much as 9 (75.0%) had spectral vascularization poorly and as much as 3 (25.0%) had good spectralvasculatory well while for good clinical response as much 19 (41.3%) had spectral vascularization poor and as many as 27 (58 , 7%) have good spectral vascularization. In the analysis with Fisher exact test found a significant relationship ($p < 0.05$) between the spectral PW Doppler transrectal image with the clinical response of external radiation therapy in stage IIB-IVA cervical cancer with RelativeRisk (RR) value 3,214 times.

	Clinical respons		p*)
	Bad (n=12)	Good (n=46)	
Spectral Doppler	9	19	p: 0.039
Bad	3	27	RR CI(95%) : 3,214
Good			(0,967-10.681)

Conclusions: There is a significant relationship between Doppler spectral imagery and the clinical response of external radiation therapy in stage IIB-IVA cervical cancercancer.

Keywords: Cervical cancer; SpectralPulsewave Doppler, Clinical Response

Characteristic	Clinical Respons		p)
	Bad (n=12)	Good (n=46)	
Age (Year)	0	1	313
26 – 35	4	9	
36 – 45	3	22	
46 – 55	5	10	
56 – 65	0	4	
>65			
Stage of disease	7	22	373
II B	4	2	
III B	1	2	
IV A			
Histopathology	2	4	448
Adeno Ca	10	41	
Squamous cell carcinoma	0	1	
Other (clear cell)			339
Differentiation	2	3	
Well	5	25	
Moderately poorly	2	8	
Tumour type	4	34	0.012*
Bulky	8	12	
Non Bulky			
Tumour size before treatment	3	6	271
COP: 3.5 cm, Mean: 4.76	9	40	
small (<3.5 cm)			
big (≥ 3.5 cm)			0.048*
Tumour volume before treatment	8	16	
COP: 46 ml, Mean: 70.49	4	30	
small (<46 ml)			
big (≥ 46 ml)

Reference:

1. Alcazar JL, Jurado M, Lopez-Garcia G. Tumor vascularization in cervical cancer by 3-dimensional Pulse Wave Doppler angiography: correlation with tumor characteristics. Int J Gynecol Cancer. 2010;393-7.
2. Huang YF, Cheng YM, Wu YP. Three-dimensional Pulse Wave Doppler ultrasound in cervical carcinoma: monitoring treatment response to radiotherapy. Ultrasound Obstet Gynecol. 2013;84-92.
3. Pirhonen JP, Grenman SA, Bredbacka AB. Effects of external radiotherapy on uterine blood flow in patients with advanced cervical carcinoma assessed by color Doppler ultrasonography. Cancer. 1995;67-71.
4. Chen CA, Cheng WF, Lee CN. Pulse Wave Doppler vascularity index for predicting the response of neoadjuvant chemotherapy in cervical carcinoma. Acta Obstet Gynecol Scand. 2004;591-7.

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