

XXXIII CONGRESSO NAZIONALE AIRO

# AIRO2023

BOLOGNA,  
27-29 OTTOBRE 2023

PALAZZO DEI CONGRESSI

Radioterapia Oncologica: l'evoluzione al servizio dei pazienti



Associazione Italiana  
Radioterapia e Oncologia clinica



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**IMPACT OF PRE-TREATMENT CLINICAL DATA AND OF DYNAMIC EVALUATION OF 18-F-FDG-PET SUVMAX, INFLAMMATORY INDICES AND PROGNOSTIC NUTRITIONAL INDEX IN 173 CERVICAL CANCER PATIENTS TREATED WITH CONCURRENT CHEMORADIATION.**

**IMPATTO DEI DATI CLINICI PRE-TRATTAMENTO E DELLA VALUTAZIONE DINAMICA DEL 18-FDG-PET SUVMAX, DEGLI INDICI INFIAMMATORI E DELL'INDICE NUTRIZIONALE PROGNOSTICO IN 173 PAZIENTI AFFETTE DA CARCINOMA DELLA CERVICE TRATTATE CON CHEMIORADIOTERAPIA CONCOMITANTE.**

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## What about “bad outcome predictors” in LACC?

> *Int J Gynecol Cancer.* 2007 Jul-Aug;17(4):833-42. doi: 10.1111/j.1525-1438.2007.00895.x. Epub 2007 Mar 15.

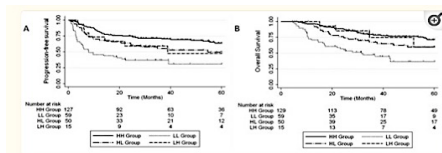
### Long-term outcome and prognostic factors in patients with cervical carcinoma: a retrospective study

I L Atahan <sup>1</sup>, C Onal, E Ozyar, F Yiliz, U Selek, F Kose

> *Clin Transl Radiat Oncol.* 2017 Jun 12;4:51-56. doi: 10.1016/j.ctro.2017.05.001. eCollection 2017 Jun.

### Anemia, leukocytosis and thrombocytosis as prognostic factors in patients with cervical cancer treated with radical chemoradiotherapy: A retrospective cohort study

Theodora A Koullis <sup>1,2</sup>, Elizabeth N Kornaga <sup>3</sup>, Robyn Banerjee <sup>1,2</sup>, Tien Phan <sup>1,2</sup>, Prafull Ghatage <sup>1,4</sup>, Anthony M Magliocco <sup>3</sup>, Susan P Lees-Miller <sup>5</sup>, Corinne M Doll <sup>1,2</sup>



**Fig. 3**  
5-year PFS (A) and OS (B) comparing patient's Hgb status throughout treatments: Hgb levels >115 g/L both pre- and during-treatment (HH group), normal pre-treatment and low during treatment (HL group), low pre-treatment and normal during treatment (LH group), and low both pre- and during-treatment (LL group).

**Review** > *Rays.* 2004 Jul-Sep;29(3):253-70.

### Dose fractionation and biological optimization in carcinoma of the uterine cervix

Carlos A Perez <sup>1</sup>

> *Nutrition.* 2023 May;109:11966. doi: 10.1016/j.nut.2022.11966. Epub 2023 Jan 7.

### Low skeletal muscle mass predicts poor prognosis for patients with stage III cervical cancer on concurrent chemoradiotherapy

Masahiro Aichi <sup>1</sup>, Sho Hasegawa <sup>2</sup>, Yusuke Kurita <sup>3</sup>, Satoru Shinoda <sup>4</sup>, Shingo Kato <sup>3</sup>, Taichi Mizushima <sup>1</sup>, Naho Ruiz Yokota <sup>1</sup>, Etsuko Miyagi <sup>1</sup>

> *J Pers Med.* 2023 Aug 3;13(8):1229. doi: 10.3390/jpm13081229.

### Classical Prognostic Factors Predict Prognosis Better than Inflammatory Indices in Locally Advanced Cervical Cancer: Results of a Comprehensive Observational Study including Tumor-, Patient-, and Treatment-Related Data (ESTHER Study)

Martina Ferioli <sup>1</sup>, Anna Benini <sup>1,2</sup>, Claudio Malizia <sup>3</sup>, Ludovica Forlani <sup>1,2</sup>, Federica Medici <sup>1,2</sup>, Viola Laghi <sup>1,2</sup>, Johnny Ma <sup>1,2</sup>, Andrea Galuppi <sup>2</sup>, Savino Cilla <sup>4</sup>, Milly Buwenge <sup>1</sup>, Gabriella Macchia <sup>5</sup>, Claudio Zamagni <sup>6</sup>, Luca Tagliaferri <sup>7</sup>, Anna Myriam Perrone <sup>1,8</sup>, Pierandrea De Iaco <sup>1,8</sup>, Lidia Strigari <sup>9</sup>, Alessio Giuseppe Morganti <sup>1,2</sup>, Alessandra Arcelli <sup>1,2</sup>

> *Magn Reson Imaging.* 2022 Sep;91:37-44. doi: 10.1016/j.mri.2022.05.005. Epub 2022 May 12.

### IVIM-DWI and MRI-based radiomics in cervical cancer: Prediction of concurrent chemoradiotherapy sensitivity in combination with clinical prognostic factors

Yu Zhang <sup>1</sup>, Kaiyue Zhang <sup>1</sup>, Haodong Jia <sup>2</sup>, Bairong Xia <sup>3</sup>, Chunbao Zang <sup>4</sup>, Yunqin Liu <sup>4</sup>, Liting Qian <sup>5</sup>, Jiangning Dong <sup>6</sup>

**Review** > *Diagnostics (Basel).* 2021 Jul 14;11(7):1258. doi: 10.3390/diagnostics11071258.

### A Systematic Review and Meta-Analysis of the Prognostic Impact of Pretreatment Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography Parameters in Patients with Locally Advanced Cervical Cancer Treated with Concomitant Chemoradiotherapy

Lu Han <sup>1</sup>, Qi Wang <sup>1,2</sup>, Lanbo Zhao <sup>1</sup>, Xue Feng <sup>1</sup>, Yiran Wang <sup>1</sup>, Yuliang Zou <sup>1</sup>, Qiling Li <sup>1</sup>

## Aim

To analyze the predictive role of 18-F-FDG-PET  $\Delta$ -SUVmax (tumor SUV pre- minus post-treatment) and of several inflammatory markers (post- minus pre-treatment) in a large population of patients with LACC treated with CRT + BRT boost



## Methods

- 173 patients with LACC treated in our institution with definitive CRT from 2007 to 2021 were retrospectively analyzed

Parameters	
<b>Clinical data</b>	Age
	BMI
	Hb level
<b>Tumor data</b>	FIGO stage
	Maximum T diameter
	N stage
<b>Treatment data</b>	Total dose (Gy)
	OTT
	Fractionation

- Univariate and Cox's regression analysis were performed to assess the correlation with LC, DMFS, DFS, and OS

	$\Delta$ values:	
<b>18-F-FDG-PET</b>	T SUVmax	
<b>Nutritional Index</b>	PNI	
<b>Inflammatory indexes</b>	NLR	COP-NLR
	PLR	APRI
	MLR	ALRI
	LLR	ANRI
	SII	SIRI

## Univariate analysis

- No  $\Delta$  of inflammatory indices was correlated with any outcome
- Higher  $\Delta$ -SUVmax was significantly correlated with LC, DFS, and OS

Variable	Value	2-y LC	5-y LC	p	2-y DMFS	5-y DMFS	p	2-y DFS	5-y DFS	p	2-y OS	5-y OS	P
Delta NLR	< 2.79	84.9	84.9	0.378	76.5	71.9	0.799	68.1	66.7	0.367	89.4	73.2	0.529
	$\geq$ 2.79	81.5	79.8		83.1	76.9		70.2	61.2		85.5	68.3	
Delta PLR	< 295.58	82.8	82.8	0.869	79.0	73.1	0.889	67.0	63.4	0.704	90.0	69.4	0.543
	$\geq$ 295.58	83.3	81.7		80.7	75.9		71.0	64.4		85.3	71.4	
Delta MLR	< 0.42	83.3	83.3	0.701	76.5	71.3	0.892	67.9	64.6	0.659	87.6	72.1	0.727
	$\geq$ 0.42	82.8	81.1		82.7	77.5		70.3	63.3		87.1	69.4	
Delta SII	< 86.66	80.0	80.0	0.557	74.6	70.0	0.556	64.8	62.7	0.866	88.4	69.5	0.836
	$\geq$ 86.66	84.5	83.1		82.4	76.8		71.2	64.3		86.9	71.2	
Delta LLR	< 3.58	86.0	86.0	0.225	76.3	71.6	0.770	67.8	66.4	0.437	91.8	73.2	0.464
	$\geq$ 3.58	80.5	78.9		83.2	77.3		70.4	61.7		83.4	68.4	
Delta APRI	< 20.925	80.6	80.6	0.444	78.4	76.2	0.619	66.9	62.5	0.463	82.9	69.2	0.608
	$\geq$ 20.925	84.9	83.3		81.1	73.8		70.8	65.1		90.9	71.9	
Delta ALRI	< 37.06	84.7	84.7	0.688	77.1	73.6	0.425	68.2	66.6	0.859	89.6	71.8	0.569
	$\geq$ 37.06	81.8	80.3		82.1	75.7		69.8	62.3		85.7	69.7	
Delta SIRI	< -16.39	84.7	82.7	0.882	85.2	79.5	0.469	69.4	65.6	0.950	87.8	74.4	0.508
	$\geq$ -16.39	81.6	81.6		75.3	70.4		68.9	62.6		86.9	67.4	
Delta ANRI	< 3.56	78.8	78.8	0.253	76.4	74.1	0.238	63.6	56.6	0.105	83.7	60.5	0.115
	$\geq$ 3.56	86.2	84.7		82.4	76.9		73.2	69.1		88.8	77.4	
Delta COP*	< 0	80.7	80.7	0.302	79.0	75.6	1	83.7	67.3	0.664	86.9	72.2	0.858
	$\geq$ 0	88.0	84.7		81.9	70.7		70.8	54.4		88.2	65.9	
Delta SUV T	< 12.35	73.3	73.3	0.001	72.7	68.6	.059	60.8	58.6	0.030	79.0	59.4	0.010
	$\geq$ 12.35	92.4	87.7		86.6	78.3		77.1	69.5		95.1	80.5	

## Multivariable analysis

- No index correlated with LC, or DMFS
- $\Delta$ -SUVmax and  $\Delta$ -ANRI were significantly correlated with DFS and OS
- Higher Hb level and less advanced tumors not requiring extended nodal irradiation showed significance for improved OS.

Parameter	Values	DFS			OS		
		HR	95%CI	p	HR	95%CI	p
<b>Hb</b>		0.753	0.599 – 0.945	<b>0.014</b>	0.649	0.498 – 0.846	<b>0.001</b>
<b>N stage</b>		2.034	0.908 – 4.557	<b>0.085</b>	2.720	1.029 – 7.191	<b>0.044</b>
<b>Delta SUV T</b>	12.35	0.590	0.349 – 0.998	<b>0.049</b>	0.486	0.256 – 0.919	<b>0.027</b>
<b>Delta ANRI</b>	3.56	0.595	0.352 – 1.008	<b>0.053</b>	0.383	0.191 – 0.767	<b>0.007</b>
<b>Delta ALRI</b>	37.06				2.067	0.982 – 4.351	<b>0.056</b>

## Conclusions

- Our analysis suggests that the prognosis in LACC patients can be accurately predicted by pre-post treatment variations of 18F-FDG PET SUVmax and ANRI, in addition to the traditional patient- and treatment-related prognostic factors
- Despite conflicting literature about the prognostic role of metabolic parameters in this setting, our results warrant further investigations of metabolic imaging as a reliable tool to build prognostic models



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*Grazie per l'attenzione !*



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