P53 EXPRESSION AS A RISK FACTOR IN TYPE 1 ENDOMETRIAL CANCER

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Introduction

Tumor genesis has been thought to be significantly influenced by mutations of the tumor suppressor gene p53. In several types of cancer, clinically excessive p53 expression or the complete absence of p53 detection are predictive of TP53 mutations and have been linked to a poor prognosis. P53-abnormal proteins are one of the prognostic factors associated with a poor outcome in endometrial cancer. Type 1 endometrial carcinoma is the most frequent type of endometrial carcinoma and is generally associated with better clinical outcomes. Despite this, the incidence of recurrence is increasing. Few studies have explored the prevalence of p53 expression in this type of cancer in routine clinical practice. Immunohistochemistry for p53 is accurate and can help stratify those who could have aggressive molecular p53 mutants but with favourable clinicopathologic features.

Aim of the work

The aim of this study was to investigate the prevalence of P53 expression by immunohistochemistry among patients with type 1 endometrial cancer.

Patients and Methods

An observational, analytical cross-sectional study was conducted over one year and three months on 113 patients with primary type 1 endometrial carcinoma who were consecutively diagnosed by D&C and histopathology or confirmed on hysterectomy specimens. Preoperative evaluation for staging was done with ultrasound and MRI when indicated; D&C biopsy and paraffin-embedded tissues were examined for histopathological features and expression of P53 using immunohistochemical staining techniques on endometrial tissues or hysterectomy specimens, and this was done on 63 patients.

Data were fed to the computer and analyzed using the IBM SPSS software package, version 20.0. (Armonk, NY: IBM Corp).

Results

Table (1): Relation between P53 expression with different parameters (n=63[#])

	Wild type (n=41)	Mutant (n=22)	Test of sig.	p
	No. (%)	No. (%)		
Age (years)				
<60	18 (43.9%)	3 (13.6%)	c^2= 5.902*	0.015*
≥60	23 (56.1%)	19 (86.4%)		
Median (Min. – Max.)	60 (35 – 75)	62 (4 – 76)	t= 1.515	0.135
Mean ± SD.	59 ± 8.3	62.1 ± 6.6		
BMI (kg/m^2)				
<30	0 (0%)	2 (9.1%)	c^2= 3.849	FEp= 0.118
≥30	41 (100%)	20 (90.9%)		
Median (Min. – Max.)	40 (30 – 69)	40 (22 – 52)	t= 0.106	0.916
Mean ± SD.	39.6 ± 7.5	39.8 ± 7.7		
Disease stage				
I	32 (78%)	15 (68.2%)	c^2=0.736	0.391
IA	27 (65.9%)	9 (40.9%)	c^2=3.638	0.056
IB	5 (12.2%)	6 (27.3%)	c^2=2.258	FEp=0.170
II	5 (12.2%)	2 (9.1%)	c^2=0.140	FEp=1.000
III	4 (9.8%)	5 (22.7%)	c^2=1.967	FEp=0.256
IIIA	2 (4.9%)	1 (4.5%)	c^2=0.003	FEp=1.000
IIIB	1 (2.4%)	1 (4.5%)	c^2=0.207	FEp=1.000
IIIC1	1 (2.4%)	1 (4.5%)	c^2=0.207	FEp=1.000
IIIC2	0 (0%)	2 (9.1%)	c^2=3.849	FEp=0.118
Tumor grade				
I	14 (34.1%)	1 (4.5%)	c^2= 6.934*	0.031*
II	21 (51.2%)	16 (72.7%)		
III	6 (14.6%)	5 (22.7%)		
Endometrioid carcinoma				
-Endometrioid adenocarcinoma	27 (65.9%)	16 (72.7%)	c^2= 0.312	0.576
-Endometrioid adenocarcinoma Variants	14 (34.1%)	6 (27.3%)		
- with villoglandular variant	10 (24.4%)	4 (18.2%)	c^2= 0.319	FEp= 0.753
-with squamous diferentiation	4 (9.8%)	2 (9.1%)	c^2=0.007	FEp=1.000

χ^2: **Chi square test** FE**: Fisher Exact** **t: Student t-test**

p: p value for comparing between **the two studied P53 expression categories**

*: Statistically significant at p ≤ 0.05

Table (2): Relation between p53 wild type and mutant with postoperative /histopathological specimen characteristics (n=63[#])

Postoperative /Pathological specimen characteristics	Wild type (n=41)	Mutant (n=22)	c2	p
	No. (%)	No. (%)		
Tumor stage				
N/A	7 (17.1%)	7 (31.8%)	1.801	FEp=0.213
I	28 (68.3%)	10 (45.5%)	3.120	0.077
IA	19 (46.3%)	4 (18.2%)	4.898*	0.027*
IB	9 (22%)	6 (27.3%)	0.224	0.636
II	3 (7.3%)	2 (9.1%)	0.062	FEp=1.000
III	3 (7.3%)	3 (13.6%)	0.664	FEp=0.413
IIIA	2 (4.9%)	3 (13.6%)	1.503	FEp=0.333
IIIB	1 (2.4%)	0 (0%)	0.545	FEp=1.000
Histology grade				
N/A	7 (17.1%)	7 (31.8%)	7.052	MCp= 0.072
I	13 (31.7%)	1 (4.5%)		
II	16 (39%)	11 (50%)		
III	5 (12.2%)	3 (13.6%)		
Lymph vascular space invasion				
N/A	7 (17.1%)	7 (31.8%)	1.803	MCp= 0.396
Negative	27 (65.9%)	12 (54.5%)		
Positive	7 (17.1%)	3 (13.6%)		
Lymph node metastasis				
Not submitted	19 (55.9%)	9 (60%)	0.072	0.788
Negative	15 (44.1%)	6 (40%)		

χ^2: **Chi square test** FE**: Fisher Exact** MC: **Monte Carlo**

p: p value for comparing between **the two studied P53 expression categories**

*: Statistically significant at p ≤ 0.05

Conclusion

This study showed that the P53 null-type pattern is also found in type 1 endometrial carcinoma and non-testing of p53 expression could result in under or overtreatment. It also revealed that p53 expression and mutant type are directly related to advanced age and a higher preoperative histology grade.