

PLASMA ENDOCAN LEVEL AND PROGNOSTIC SIGNIFICANCE IN BREAST CANCER PATIENTS

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Introduction - Purpose : Endocan, known as endothelial cell specific molecule (ESM), is a dermatan sulphate proteoglycan. It is a novel endothelial dysfunction marker, plasma levels of which have recently been shown to be elevated in some cancer types. The aim of this study is to examine the plasma endocan level and its prognostic significance in newly diagnosed breast cancer patients.

Methods - Tools : A total of 84 patients were enrolled the study. Ethical approval and informed consent were attained. Plasma endocan level was measured by specific enzyme-linked immunosorbent assay (ELISA) kit.

Findings : Mean diagnostic age of patients were 52.5 ± 13.3 (27-84), and 54.7% of the patients are postmenopausal. Demographic features of patients are seen in Table 1. At the time of diagnosis, 33 patients had stage 4 disease. Invasive ductal cancer (IDC) and invasive lobular cancer (ILC) constituted 76.2% and 3.2% of patients respectively. The median plasma endocan level was 619.9 (min 259.9-2813.2) ng/L and its level was significantly higher in metastatic breast cancer group compared to non-metastatic breast cancer group. According to molecular sub-type of breast cancer, there is not statistical difference in plasma endocan level, but its level was higher in patients with Her-2 amplified and TNBC (table 2). Median follow-up time is 11 (1-30) months. Event free survival (EFS) was 15 months in patients with plasma endocan level lower than 620, while it was 4 months in patients with serum endocan level greater than 620 ($p=0.016$) (figure 1). There was no difference between groups in terms of hypertension, age, Lymphovascular invasion (LVI), extra capsular extension (ECE), body mass index (BMI) and White blood cells (WBC), platelet count and plasma endocan level. When clinicopathological parameters were compared according to metastatic or non metastatic situation there were no significant difference. Only CEA and Ca15-3 levels were higher in metastatic group than non metastatic group (Table 3)

Discussion : Endocan is secreted from vascular endothelium by stimuli of inflammatory cytokines, and regulates cellular adhesion, migration and proliferation. Serum endocan level is known to increase in endothelial dysfunction situations such as sepsis, Chronic kidney disease and Diabetic proliferative retinopathy. Serum endocan level has been shown to increase in some cancers (such as gastric and ovarian cancer). Serum levels of which are shown positive correlation with in tumor recurrence and progression. It was used as a prognostic biomarker in some cancer types. We have shown that plasma endocan level is higher in metastatic group than non metastatic group by means of in this study. Also we found that patients with high plasma endocan levels were poor prognosis. According to the sub-type analysis, there was not statistical difference in plasma endocan levels but the level was higher in patients with Her-2 amplified breast cancer and TNBC. Further studies would be useful to assess endocan level as a prognostic factor in breast cancer.

Keywords: Endocan, Breast cancer, Prognosis

Table 1

	n (%)
T1	13 (15.5)
T2	42 (50)
T3	13 (15.5)
T4	12 (14.3)
N0	26 (31)
N1	20 (23.8)
N2	17 (20.2)
N3	17 (20.2)
Stage	
Stage 1	10 (11.9)
Stage 2	21 (25)
Stage 3	20 (23.8)
Stage 4	33 (39.2)
Hormonal situation	
ER+	61 (72.6)
PR+	51 (60.7)
Hormone receptor	
Positive	63 (75)
Negative	21 (25)
BMI	
<24.9	18 (21.4)
25-29.9	34 (40.5)
>30	32 (38.1)
Co-morbid disease	
DM	12 (14.3)
HT	25 (29.8)
Pathology	
IDC	64 (76.2)
ILC	3 (3.6)
MIX	13 (15.5)
Mucinous	2 (2.4)
Metaplastic	1 (1.2)
Neuroendocrine	1 (1.2)
Sub-type	
Luminal A	26 (31)
Luminal B	34 (40.5)
Her-2	11 (13.1)
TNBC	13 (15.5)
Age of diagnosis	
<40	15 (17.8)
40-49	19 (22.6)
50-59	23 (27.5)
60-69	18 (21.4)
>70	9 (10.7)

Patients Characteristics

Table 2

Parameters	n	Plasma endocan level	p
Stage			
Stage 1-3	51	547.6	0.045
Stage 4	33	695.3	
Sub-type			
Luminal A	25	581	0.41
Luminal B	34	611	
Her-2	11	678	
TNBC	14	595	
DM			
Yes	12	466	0.007
No	72	681	
HT			
Yes	25	542	0.16
No	59	671	
Menopausal situ.			
Premenopausal	34	673	0.47
Premenopausal	4	1312	
Postmenopausal	46	602	
Grade			
Grade1	42	581	0.2
Grade 2-3	41	683	
BMI			
<24.9	18	774	0.2
25-29.9	34	549	
>30	32	649	
LVI			
Yes	36	707.3	0.11
No	48	575.3	
ECE			
Yes	25	756.6	0.09
No	59	585.6	
WBC			
>10,000	10	671	0.56
<10,000	74	611	
Age			
<55	50	690	0.19
>55	34	564	

Abbreviations: Lymphovascular invasion (LVI), extra capsular extension (ECE), body mass index (BMI) and White blood cells (WBC).

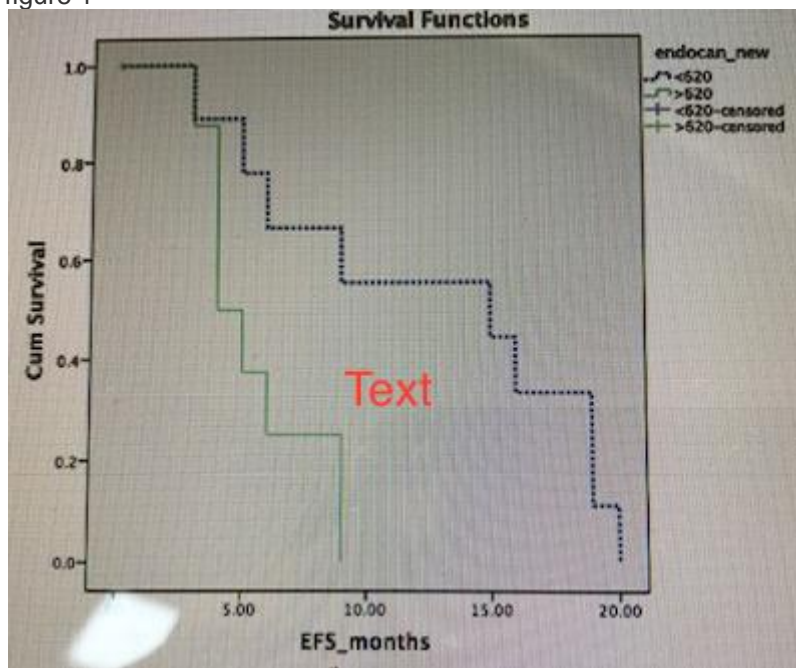
Association of serum endocan levels with clinical and pathological variables in breast cancer patients

Table 3

	<u>Metastatic</u>	<u>Non-metastatic</u>	p
No of patients	33	51	
Age, year	51±12.4	53.1±13.9	0.65
BMI, kg/m²	28.9±5.5	28.5±5.4	0.73
Presence of hypertension [n, (%)]	7 (21%)	18 (35%)	0.16
Presence of diabetes [n, (%)]	4 (12%)	8 (24%)	0.75
Menopause [n, (%)]			0.72
<u>Premenopausal</u>	12 (36%)	22 (43%)	
<u>Postmenopausal</u>	18 (54%)	28 (54%)	
LVI	16	20	0.27
CEA	0.8-3400 (2.6)	0.6-4.7 (1.3)	0.0001
Cal5-3	4.7-719 (23)	4.9-20.7 (12.3)	0.0001
Grade			0.11
Grade 1	13 (39.4%)	29 (56.9%)	
Grade 2-3	20 (60.6%)	22 (43.1%)	
Presence of estrogen receptor [n, (%)]	24 (72.7%)	37 (72.5%)	0.98
Presence of progesterone receptor [n, (%)]	20 (60.6%)	31 (60.8%)	0.98
Presence of Her2 [n, (%)]	9 (27.3%)	18 (35.3%)	0.44

Clinicopathological parameters according to the metastatic status

figure 1



Kaplan-Meier curves for Event free survival (EFS) of serum endocan levels