

RELATIONSHIP BETWEEN DIASTOLIC BLOOD PRESSURE AND ATHEROSCLEROTIC BURDEN IN PATIENTS WITH CORONARY ARTERY DISEASE

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INTRODUCTION

Hypertension remains a leading cause of morbidity and mortality, and the optimum blood pressure target remains debated, especially in coronary artery disease, given concerns for reduced myocardial perfusion if diastolic blood pressure is too low.

AIM OF THE WORK

The aim of this work was to study the relationship between diastolic blood pressure (DBP) and severity of coronary artery atherosclerotic burden quantified by SYNTAX Score and SYNTAX Score II in patients with stable coronary artery disease.

SUBJECTS AND METHODS

Three hundred consecutive stable patients presenting to Alexandria main university hospitals catheterization laboratories with signs or symptoms of CAD who underwent elective coronary angiography was included in the study. Patients were divided into three groups according to the SYNTAX Scores as low, intermediate, and high.

RESULTS

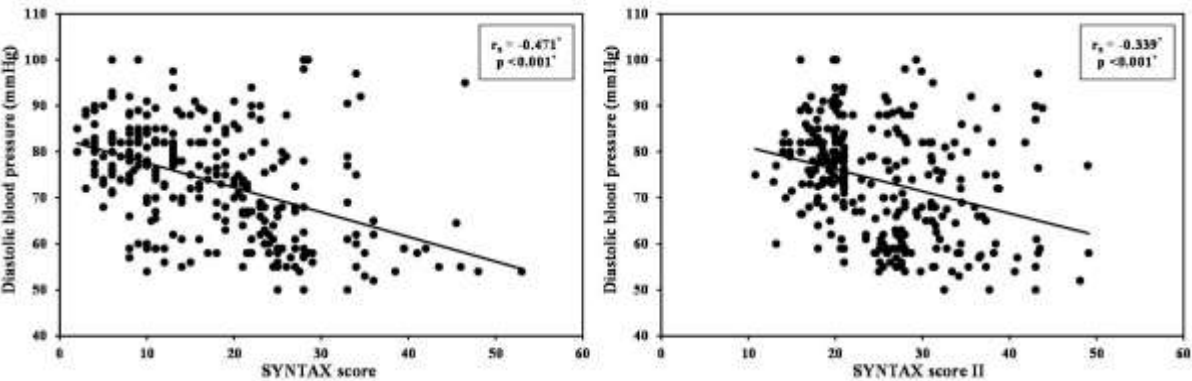
Patients were predominantly males (72%), 213 patients (71%) had hypertension. High atherosclerotic burden was identified by the presence of intermediate or high SYNTAX Score and SYNTAX Score II scores. The frequency of high atherosclerotic burden was significantly increased with decreasing DBP, for SYNTAX Scores of 41.1%, 35.6%, 10.0% and 13.3% in DBP < 60, 60–69, 70–79, and ≥ 80 mmHg; p < 0.0001 for all and SYNTAX Score II levels of 29.9%, 26.2%, 20.1% and 23.8% in DBP < 60, 60–69, 70–79, and ≥ 80 mmHg; p < 0.0001 for all

Table 1: Comparison between the three studied SYNTAX score groups according to diastolic blood pressure

Diastolic blood pressure (mmHg)	Total (n=300)		SYNTAX score						P
			0 – 22 (Low) (n=210)		23 – 32 (Intermediate) (n=62)		≥33 (High) (n=28)		
	No.	%	No.	%	No.	%	No.	%	
<60	53	17.7	16	7.6	23	37.1	14	50.0	<0.001*
60 – 69	56	18.7	24	11.4	25	40.3	7	25.0	
70 – 79	89	29.7	80	38.1	6	9.7	3	10.7	
≥80	102	34.0	90	42.9	8	12.9	4	14.3	
Median (IQR)	75.0 (64.25–82.0)		78.0 (72.0 – 83.0)		62.75 (58.0– 69.0)		59.50 (55.0–72.0)		<0.001*

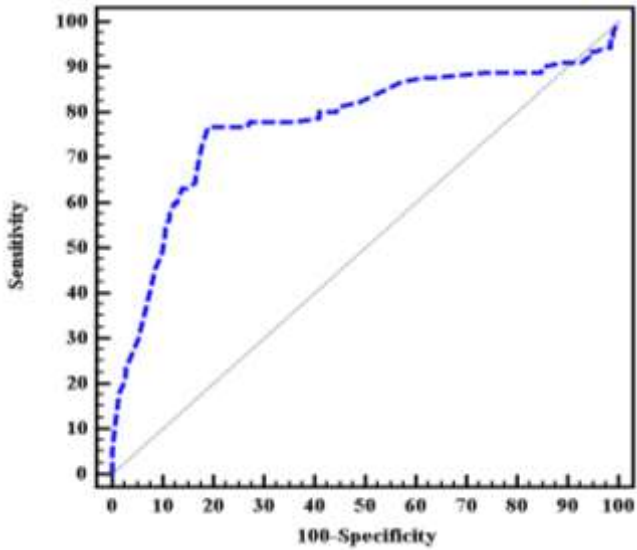
Table 2: Comparison between the three studied SYNTAX score II groups according to diastolic blood pressure

Diastolic blood pressure (mmHg)	Total (n=300)		SYNTAX score II						p
			≤21 (Low) (n=136)		>21– ≤28 (Intermediate) (n=78)		>28 (High) (n=86)		
	No.	%	No.	%	No.	%	No.	%	
<60	53	17.7	4	2.9	24	30.8	25	29.1	<0.001*
60 – 69	56	18.7	13	9.6	21	26.9	22	25.6	
70 – 79	89	29.7	56	41.2	17	21.8	16	18.6	
≥80	102	34.0	63	46.3	16	20.5	23	26.7	
Median (IQR)	75.0 (64.25–82.0)		79.0 (73.50–83.0)		67.0 (59.0–78.0)		68.0 (58.0–81.0)		<0.001*



Correlation between Diastolic blood pressure (mmHg) with SYNTAX score and SYNTAX score II (n=300)

	Diastolic blood pressure (mmHg)	
	r _s	p
SYNTAX score	-0.471*	<0.001*
SYNTAX score II	-0.339*	<0.001*



ROC curve for diastolic blood pressure to discriminate intermediate / high SYNTAX (n=90) from low SYNTAX (n = 210)

	AUC	p	95% C.I	Cut off#	Sensitivity	Specificity	PPV	NPV
Diastolic blood pressure (mmHg)	0.776*	<0.001*	0.710 – 0.843	≤69	76.67	80.95	63.3	89.0

CONCLUSION

A low DBP level had an independent association with high SYNTAX Score and SYNTAX Score II. Lower DBP, particularly < 69 mmHg, may be important to recognize a potential pathological contribution of too low DBP in the development of complexity and an increased atherosclerotic burden, which is identified by the presence of intermediate or high SYNTAX Score and SYNTAX Score II in stable patients with obstructive CAD.