

CEREBRAL ATHEROSCLEROSIS IN PATIENTS WITH ISCHEMIC HEART DISEASE

Thesis

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Neurology

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AIM OF THE WORK

- Evaluation of the cerebral and myocardial ischemia combined and vice versa
- Identification of pattern of intracranial and extracranial atherosclerotic disease in patients with ischemic heart disease
- Correlation of extent and distribution of intracranial and extracranial atherosclerosis with ischemic risk factors
- Correlation of extent and distribution of intracranial and extracranial atherosclerosis with coronary atherosclerosis

Appendix (1) Master sheet. Data of the studied sample of patients

Serial	Age	Gender	Smoking	Diabetes		Hypertension		Lipid profile			
			Y / N	Y / N	D	Y / N	D	Cholesterol	HDL	LDL	TG
1	59	M	N	Y	12	N	.	293	40	139	210
2	62	F	N	Y	9	Y	10	195	67	120	140
3	52	M	Y	N	.	N	.	287	53	156	189
4	59	F	N	N	.	N	.	162	78	98	122
5	69	M	Y	Y	14	Y	20	290	62	110	100
6	59	M	N	Y	10	N	.	190	59	123	79
7	62	F	N	Y	16	Y	18	195	81	140	88
8	52	M	Y	N	.	N	.	184	78	149	147
9	60	M	Y	Y	14	Y	8	360	46	210	387
10	55	M	Y	N	.	Y	3	190	77	139	121
11	52	M	Y	Y	8	N	.	237	59	147	145
12	55	F	Y	N	.	Y	8	170	66	105	54
13	60	F	N	N	.	Y	11	243	63	132	122
14	41	F	N	Y	6	N	.	177	83	90	83
15	53	F	N	N	.	N	.	150	74	69	70
16	75	F	N	N	.	N	.	200	67	73	66
17	61	F	N	N	.	Y	8	193	75	89	135
18	56	F	Y	Y	20	Y	11	240	49	115	157
19	58	M	Y	N	.	Y	12	287	57	198	177
20	62	M	Y	Y	8	Y	10	306	43	213	428
21	64	M	N	N	.	Y	14	310	39	227	369
22	65	M	N	Y	15	Y	11	188	53	92	72
23	59	M	N	N	.	N	.	157	68	68	80
24	60	M	Y	Y	26	Y	20	298	71	153	180
25	63	M	Y	Y	8	N	.	250	56	138	195
26	57	F	Y	N	.	Y	13	280	60	182	177
27	59	F	N	N	.	Y	6	180	74	99	60
28	61	M	Y	Y	13	Y	14	310	50	199	289
29	59	M	Y	Y	12	Y	12	295	49	194	200
30	62	M	Y	Y	8	Y	8	162	70	137	133
31	55	M	N	N	.	N	.	163	80	128	91
32	54	M	Y	Y	9	N	.	200	68	158	105
33	61	F	Y	N	.	Y	12	243	52	111	128
34	64	M	N	Y	13	Y	16	178	59	138	115
35	54	M	N	N	.	N	.	180	65	107	137
36	59	M	N	N	.	N	.	169	48	124	122
37	68	F	N	Y	11	Y	15	260	40	167	153
38	65	F	Y	N	.	Y	11	182	58	80	84
39	51	M	N	N	.	N	.	238	68	170	120
40	64	M	Y	N	.	Y	14	282	51	147	327

Y=Yes, N=No, D=Duration, LDL=Low-density lipoproteins, HDL= High-density lipoproteins, TG=Triglycerides
(To be continued)

Appendix (1). Master sheet. Data of the studied sample of patients (Cont...)

Serial	UA	CVS		Subtype of CVS	Right Carotid artery		Left Carotid artery	
		TIA	Stroke		Stenosis(%)	Plaque	Stenosis(%)	Plaque
1	7.8	N	N	-	.	Soft	.	
2	4.9	N	N	-	.		.	
3	5	Y	Y	L	.		.	
4	5.8	N	Y	L	.		.	
5	8	N	Y	TA	50		.	Soft
6	5	Y	Y	PA	.	Soft	.	
7	7.9	N	N	-	.		.	
8	7.8	Y	N	-	.		.	
9	9.1	N	N	-	40		50	
10	5.7	N	Y	L	.		.	
11	6.3	N	Y	L	40		.	
12	4.7	N	Y	PA	.	Calcified	.	
13	5.5	N	Y	L	.	Calcified	.	Calcified
14	5.1	N	N	-	.		.	
15	5.8	Y	N	-	.		.	
16	6.7	N	Y	L	.		.	
17	4.2	N	Y	L	.		.	
18	4.9	Y	Y	P	.	Calcified	.	Calcified
19	7.7	N	Y	P	.		.	
20	6	Y	Y	L	.		.	
21	5	Y	Y	L	50		60	
22	6.5	N	N	-	.	Calcified	.	Calcified
23	7.2	N	Y	L	.		.	
24	4.6	N	Y	PA	.		.	
25	6.1	N	Y	L	.	Calcified	.	
26	4.4	N	Y	TA	.		.	
27	6.2	N	N	-	.		.	
28	5	Y	Y	P	.	Calcified	.	
29	5	N	Y	P	40	Calcified	80	Calcified
30	6	N	N	0	.	Calcified	70	Calcified
31	8.8	N	N	0	85		50	Calcified
32	4	N	Y	L	.		.	
33	4	N	Y	TA	80		.	
34	8	Y	Y	TA	.		.	
35	6.2	N	Y	L	.		.	
36	5.1	N	N	-	.		.	
37	6.8	Y	Y	P	.	Calcified	50	Calcified
38	4.6	Y	Y	P	.	Calcified	.	
39	6	N	Y	L	.	Soft	.	
40	6	Y	Y	P	60	Calcified	30	

UA=Uric acid, CVS= Cerebrovascular stroke, TIA=Transient ischemic attack, EF=Ejection fraction,
LVH=Left ventricular hypertrophy **(To be continued)**

B

Appendix (1). Master sheet. Data of the studied sample of patients (Cont...)

Serial	Echocardiography			TC (No)	CCA (No)	MRA		
	EF	LVH	Hypokinesia			RICA	RMCA	RACA
1	49	N	N	.	2	.	.	.
2	70	Y	N	0	.	.	.	.
3	56	N	N	.	0	.	.	.
4	52	N	N	0	.	.	.	.
5	32	Y	Y	3	.	.	.	60
6	56	Y	N	3	.	.	40	.
7	70	Y	N	0	.	.	.	.
8	56	N	N	0	.	.	.	40
9	55	Y	Y	3	.	.	.	.
10	35	N	Y	.	1	.	40	.
11	61	N	N	1	.	.	.	.
12	60	Y	N	2	.	.	.	.
13	50	Y	N	0	.	.	.	.
14	53	N	N	2	.	.	.	.
15	70	N	N	.	0	.	.	.
16	55	N	N	0	.	.	.	.
17	66	Y	N	0	.	.	.	.
18	28	Y	Y	.	2	63	.	.
19	57	Y	N	1	.	.	.	.
20	40	N	Y	.	1	.	.	.
21	32	N	Y	.	3	.	.	.
22	69	Y	Y	1	.	.	.	.
23	69	N	N	0	.	.	.	.
24	42	Y	Y	.	3	.	90	.
25	55	N	N	.	1	.	.	.
26	66	Y	Y	3	.	.	.	.
27	60	N	N	.	1	.	.	.
28	50	Y	Y	.	3	.	.	.
29	61	Y	N	.	3	.	.	.
30	51	Y	N	1	.	.	.	.
31	36	N	Y	.	3	60	.	.
32	52	N	N	0	.	.	.	.
33	59	Y	N	0	.	.	.	.
34	54	Y	N	.	0	.	100	.
35	66	Y	N	0	.	.	.	.
36	49	N	N	2	.	.	.	.
37	40	Y	Y	.	3	.	.	.
38	46	Y	Y	.	2	.	.	.
39	57	Y	N	0	.	.	.	.
40	33	Y	Y	.	3	.	.	.

TC (No)= Number of vessels affected in myocardial TC-99 sestemebi SPECT, CCA (N0)=Number of vessels affected in coronary catheter angiography, MRA=Magnetic resonance angiography, RICA-Right internal carotid artery, RMCA=Right middle cerebral artery, RACA=Right anterior cerebral artery

(To be continued)

Appendix (1). Master sheet. Data of the studied sample of patients *(Cont...)*

Serial	MRA							
	RPCA	RVA	BA	LICA	LMCA	LACA	LPCA	LVA
1	.	.	.	.	.	40	.	.
2	.	.	.	.	30	.	30	.
3	.	40	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.
5	.	100	50	.	70	.	100	.
6	.	50	.	.	.	.	45	.
7	.	.	.	.	30	.	30	.
8	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.
12	.	.	.	.	.	.	40	.
13	.	.	.	.	.	.	.	.
14	.	.	.	.	.	.	.	.
15	.	.	.	.	.	.	.	.
16	.	.	.	.	.	.	.	.
17	.	.	.	.	.	.	.	.
18	.	.	95	75	45	.	.	65
19	.	70	.	.	.	.	.	.
20	.	.	.	.	.	.	.	.
21	.	.	.	.	.	.	.	.
22	.	.	.	.	.	.	.	.
23	.	.	.	.	.	.	.	.
24	.	.	.	.	.	.	.	70
25	.	.	.	.	.	.	.	.
26	100	75	.	.	.	.	.	.
27	.	.	.	.	.	.	.	.
28	.	30	.	55	79	.	30	55
29	.	.	75	.	.	.	.	.
30	.	.	.	.	.	.	.	.
31	40	.	.	.	.	.	.	.
32	.	.	.	.	.	.	.	.
33	.	.	.	.	100	.	.	.
34	.	.	.	.	.	.	.	.
35	.	.	.	.	.	.	.	.
36	.	.	.	.	.	.	.	.
37	.	.	50	.	50	.	.	100
38	40	60	50	.	60	.	.	.
39	.	.	.	.	.	.	.	.
40	.	70	60	.	.	.	.	.

RPCA=Right posterior cerebral artery, RVA=Right vertebral artery, BA=Basilar artery, LICA=Left internal carotid artery, LMCA=Left middle cerebral artery, LACA=Left anterior cerebral artery, LPCA=Left posterior cerebral artery, LVA=Left vertebral artery

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LIST OF ABBREVIATIONS

3D CDU	Three-dimensional carotid Duplex ultrasound	DUS	Duplex Ultrasonography
3D	Three-dimensional	ECG	Electrocardiogram
ACA	Anterior cerebral artery	ECS	Extracranial carotid stenosis
AF	Atrial fibrillation	EDV _{ICA}	End diastolic velocity _{ICA}
BA	Basilar artery	EF	Ejection fraction
CABG	coronary arteries bypass graft	HDL	High density lipoprotein cholesterol
CAC	Coronary artery calcification	hsCRP	High-sensitivity C-reactive protein
CAD	Coronary artery disease	HTN	Hypertension
CCA	Cerebral catheter angiography	ICA	Internal carotid artery
CCA-IMT	Common carotid artery intima-media thickness	ICAM-1	Intercellular adhesion molecule-1
CDS	Carotid duplex Sonography	ICS	Intracranial stenosis
CNS	Central nervous system	IHD	Ischemic heart disease
CRA	Computed rotational angiography	IL-2	Interleukin 2
CRP	C-reactive protein	IMT	Intima-media thickness
CT	Computerized tomography	INR	International normalized ratio
CTA	Computed tomography angiography	LAD	Left anterior descending
CVD	Cerebrovascular disease	LCX	left circumflex artery
DM	Diabetes mellitus	LDL	Low density lipoprotein cholesterol
DSA	Digital subtraction angiography	MB-CK	MB isoenzyme of creatine kinase
		MCA	Middle cerebral artery

MCCA	Mean intima-media of the common carotid artery	TCCS	Transcranial colour-coded sonography
MFV	Mean flow velocities	TCD	Transcranial Doppler
MI	Myocardial infarction	TG	Triglycerides
MICA	Mean intima-media of the internal carotid artery	TI	Thallium
MICPT	Maximum internal carotid artery plaque thickness	TIA	Transient ischemic attack
MRA	Magnetic resonance angiography	TOF	Time-of-flight
MRI	Magnetic resonance imaging	UA	Uric acid
MSCT	Multislice spiral computed tomography	US	Ultrasonography
NPV	Negative predictive value	VA	Vertebral artery
PCA	Posterior cerebral artery	VCAM-1	Vascular cell adhesion molecule-1
PPV	Positive predictive value	WS	Watershed areas
PSV	Peak systolic flow velocities	XRA	Conventional angiography
PSV _{ICA}	Peak systolic velocity _{ICA}		
PVD	Peripheral vascular disease		
SEC	Spontaneous echo contrast		
SPECT	Single-photon emission computed tomography		
Tc	Technetium		

