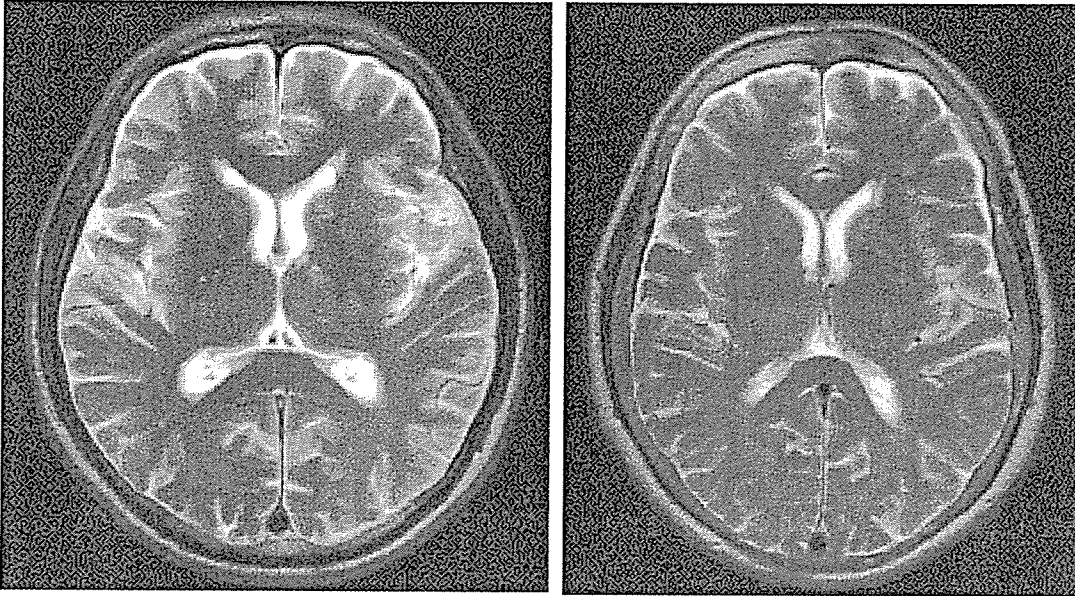
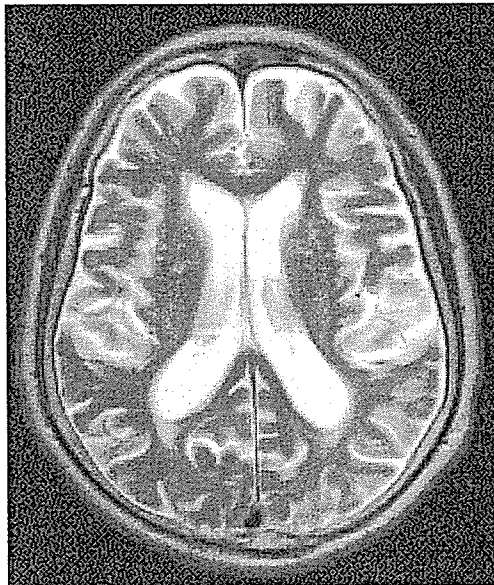
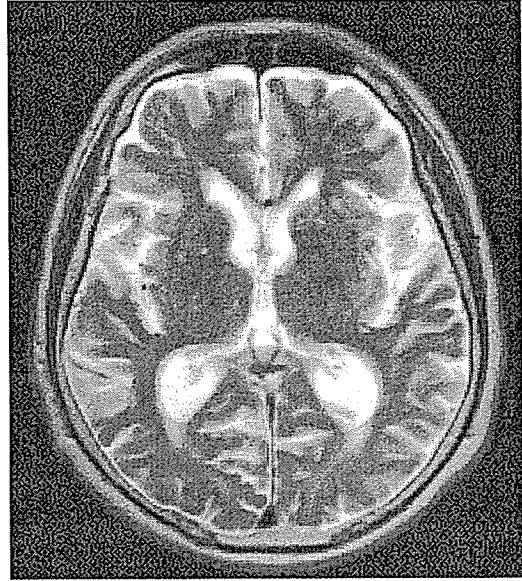
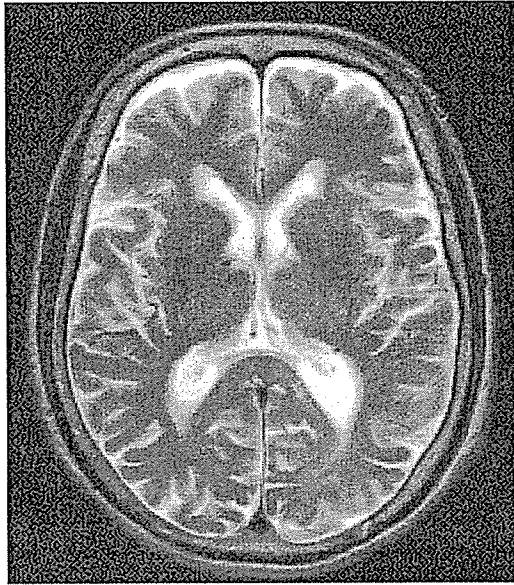


## Periventricular hyperintensity

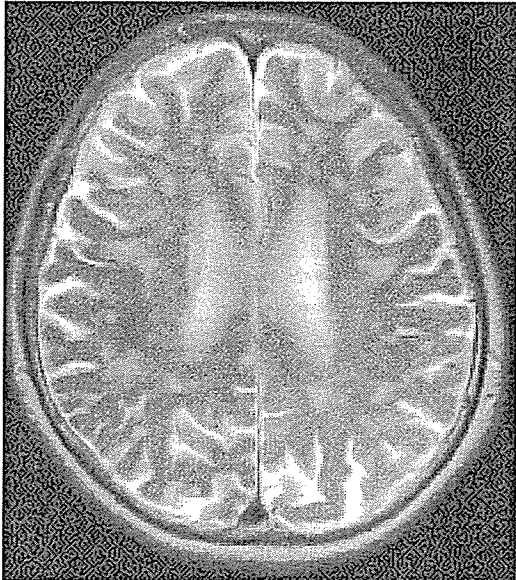
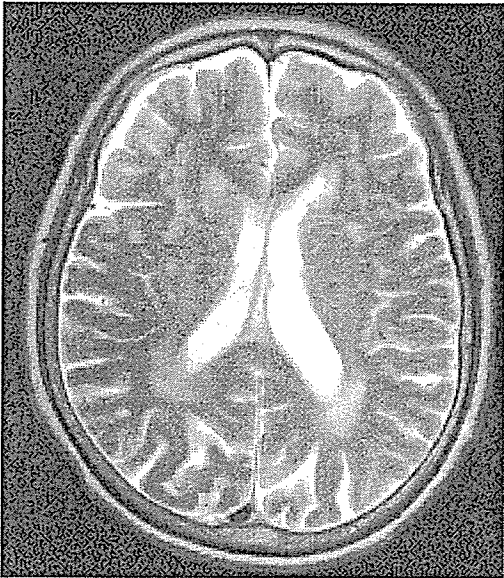
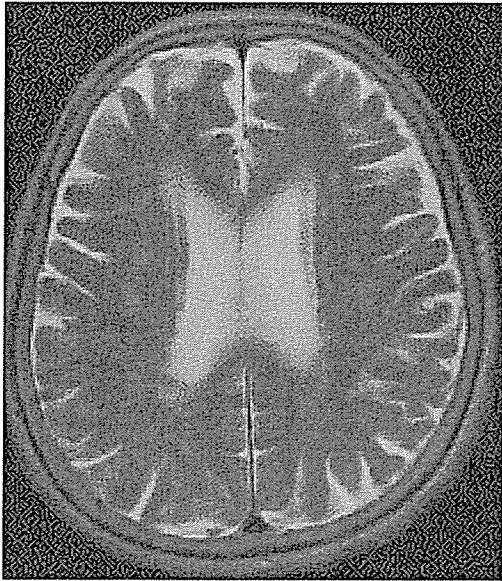
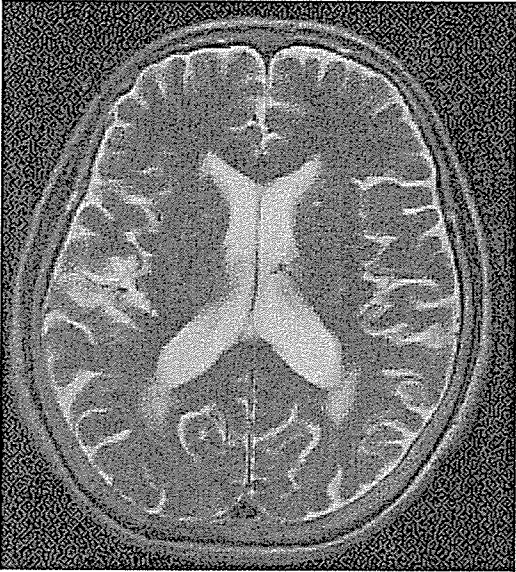
I. None or minimal periventricular signal hyperintensities in the form of caps only in the anterior horn of lateral ventricles.



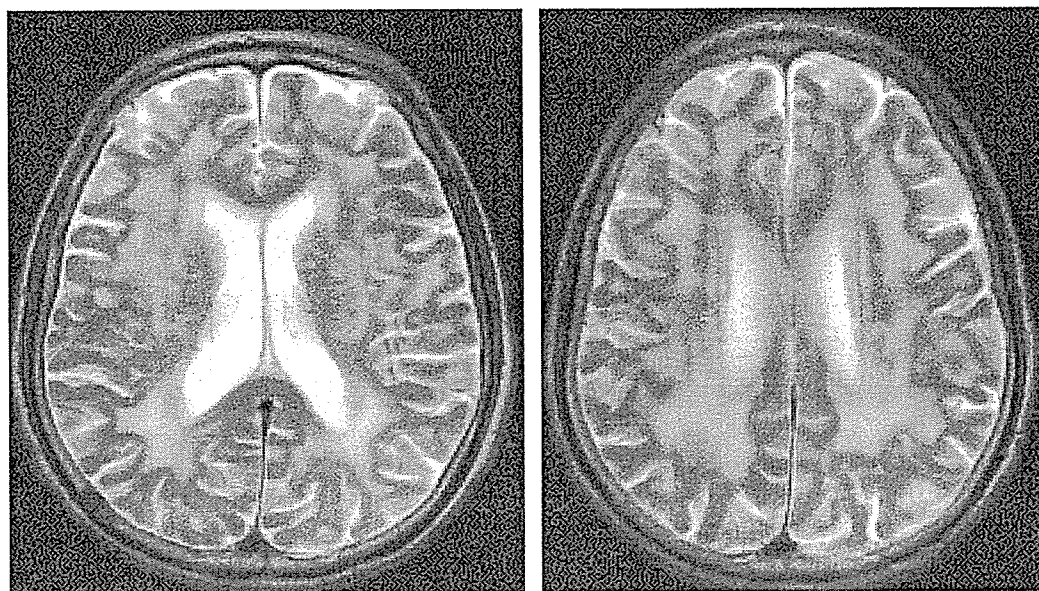
II. Caps in both anterior and posterior horns of lateral ventricles.



III. multifocal periventricular hyperintense punctuate lesions.

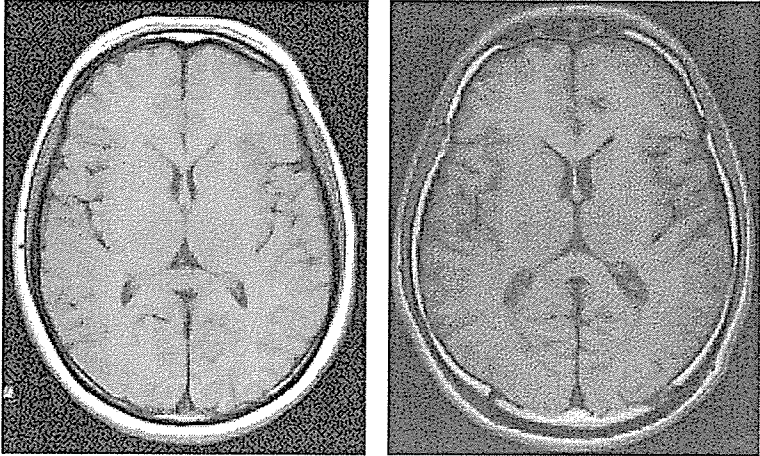


IV. Multiple high signal intensity area that reached confluency in the periventricular region and white matter.

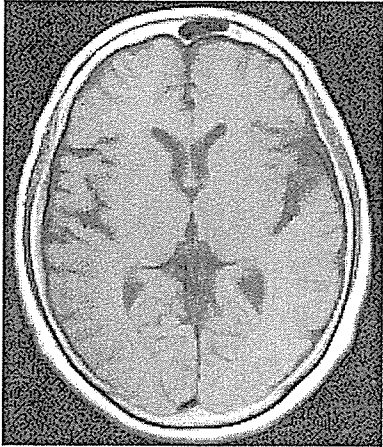


# Ventricular dilatation

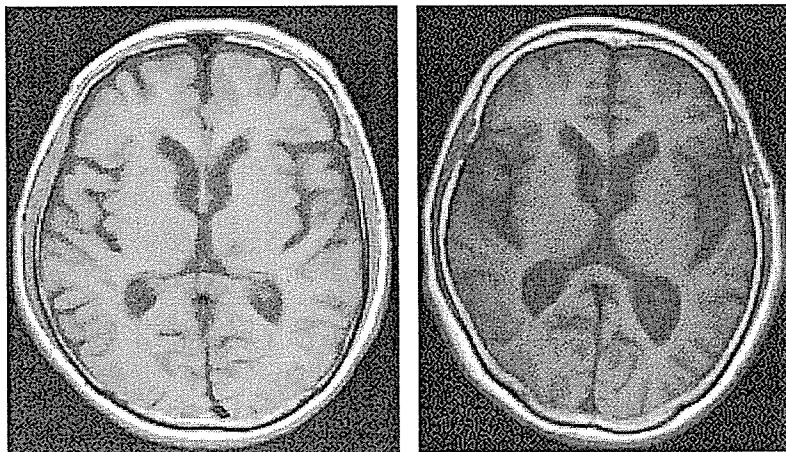
I. none



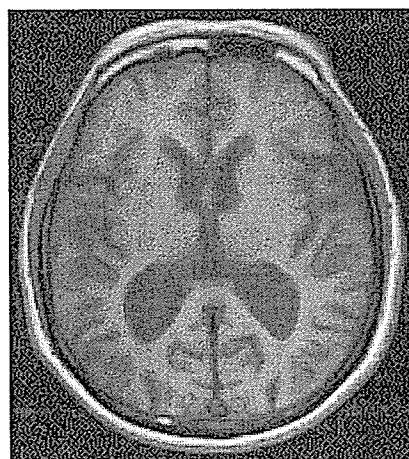
II. mild



III. moderate

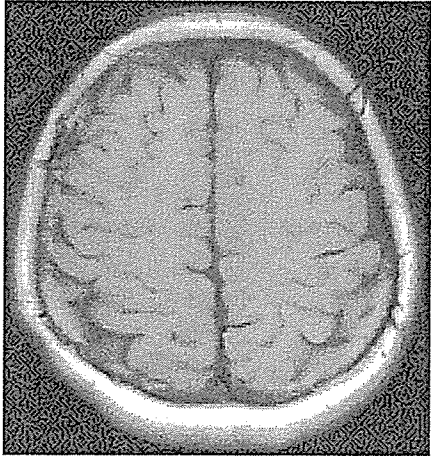


IV. severe

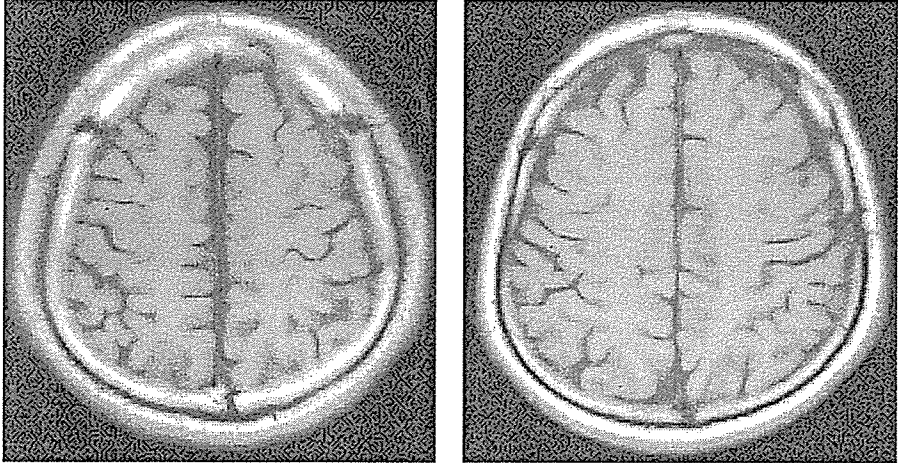


# Brain atrophy

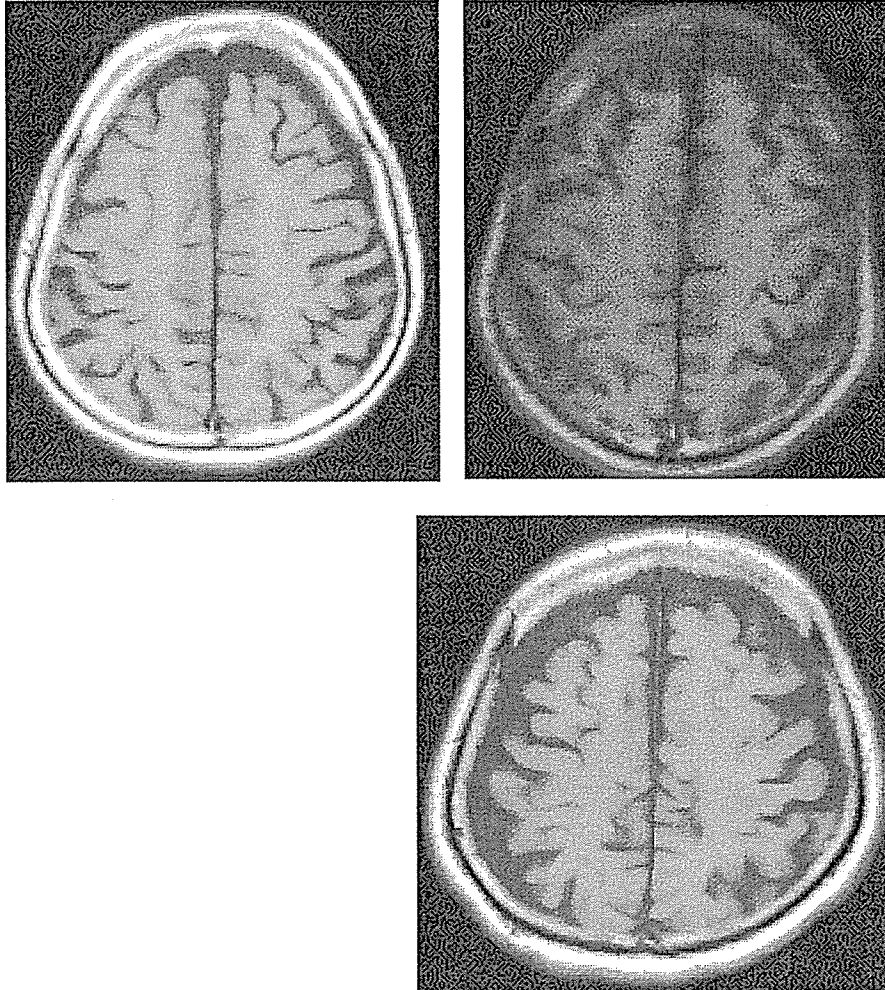
I. none



II. mild



III. Moderate



IV. severe



1) Brain Atrophy

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
normal	Male	267	94.3	255	87.6	207	73.1	75	31.0	8	15.7	812	70.6
	Female	288	99.3	273	97.8	241	89.6	188	68.9	25	43.1	1015	86.8
	Total	555	96.9	528	92.6	448	81.2	263	51.1	33	30.3	1827	78.8
mild	Male	16	5.7	36	12.4	74	26.1	143	59.1	30	58.8	299	26.0
	Female	2	0.7	6	2.2	27	10.0	84	30.8	32	55.2	151	12.9
	Total	18	3.1	42	7.4	101	18.3	227	44.1	62	56.9	450	19.4
moderate	Male	0	0.0	0	0.0	2	0.7	24	9.9	13	25.5	39	3.4
	Female	0	0.0	0	0.0	1	0.4	1	0.4	1	1.7	3	0.3
	Total	0	0.0	0	0.0	3	0.5	25	4.9	14	12.8	42	1.8
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

2) Ventricular Dilatation

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Normal	Male	251	88.7	217	74.6	119	42.0	26	10.7	1	2.0	614	53.4
	Female	277	95.5	258	92.5	200	74.3	77	28.2	8	13.8	820	70.1
	Total	528	92.1	475	83.3	319	57.8	103	20.0	9	8.3	1434	61.8
Mild	Male	28	9.9	74	25.4	150	53.0	144	59.5	21	41.2	417	36.3
	Female	12	4.1	20	7.2	66	24.5	164	60.1	34	58.6	296	25.3
	Total	40	7.0	94	16.5	216	39.1	308	59.8	55	50.5	713	30.7
Moderate	Male	4	1.4	0	0.0	14	4.9	66	27.3	24	47.1	108	9.4
	Female	1	0.3	1	0.4	2	0.7	31	11.4	16	27.6	51	4.4
	Total	5	0.9	1	0.2	16	2.9	97	18.8	40	36.7	159	6.9
Severe	Male	0	0.0	0	0.0	0	0.0	6	2.5	5	9.8	11	1.0
	Female	0	0.0	0	0.0	1	0.4	1	0.4	0	0.0	2	0.2
	Total	0	0.0	0	0.0	1	0.2	7	1.4	5	4.6	13	0.6
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

3) Periventricular hyperintensity (PVH)

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
not examined	Male	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.1
	Total	0	0.0	0	0.0	1	0.2	1	0.2	0	0.0	2	0.1
no PVH	Male	281	99.3	273	93.8	191	67.5	67	27.7	10	19.6	822	71.5
	Female	288	99.3	261	93.5	191	71.0	107	39.2	9	15.5	856	73.2
	Total	569	99.3	534	93.7	382	69.2	174	33.8	19	17.4	1678	72.4
mild PVH	Male	2	0.7	16	5.5	74	26.1	117	48.3	16	31.4	225	19.6
	Female	2	0.7	15	5.4	63	23.4	107	39.2	23	39.7	210	18.0
	Total	4	0.7	31	5.4	137	24.8	224	43.5	39	35.8	435	18.8
moderate PVH	Male	0	0.0	2	0.7	15	5.3	50	20.7	21	41.2	88	7.7
	Female	0	0.0	3	1.1	15	5.6	53	19.4	20	34.5	91	7.8
	Total	0	0.0	5	0.9	30	5.4	103	20.0	41	37.6	179	7.7
severe PVH	Male	0	0.0	0	0.0	2	0.7	8	3.3	4	7.8	14	1.2
	Female	0	0.0	0	0.0	0	0.0	5	1.8	6	10.3	11	0.9
	Total	0	0.0	0	0.0	2	0.4	13	2.5	10	9.2	25	1.1
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

4) Cerebrovascular Disease (CVD)

Cerebrovascular Disease (CVD)

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
not examined	Male	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	1	0.0
no cvd	Male	276	97.5	274	94.2	218	77.0	129	53.3	19	37.3	916	79.7
	Female	284	97.9	265	95.0	236	87.7	194	71.1	28	48.3	1007	86.1
	Total	560	97.7	539	94.6	454	82.2	323	62.7	47	43.1	1923	82.9
cvd	Male	7	2.5	17	5.8	64	22.6	113	46.7	32	62.7	233	20.3
	Female	6	2.1	14	5.0	33	12.3	79	28.9	30	51.7	162	13.9
	Total	13	2.3	31	5.4	97	17.6	192	37.3	62	56.9	395	17.0
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

Lacuna

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
not recorded	Male	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	1	0.0
no lacuna	Male	278	98.2	280	96.2	229	80.9	144	59.5	29	56.9	960	83.5
	Female	287	99.0	267	95.7	244	90.7	215	78.8	33	56.9	1046	89.5
	Total	565	98.6	547	96.0	473	85.7	359	69.7	62	56.9	2006	86.5
one lacuna	Male	4	1.4	10	3.4	29	10.2	42	17.4	10	19.6	95	8.3
	Female	3	1.0	10	3.6	18	6.7	39	14.3	18	31.0	88	7.5
	Total	7	1.2	20	3.5	47	8.5	81	15.7	28	25.7	183	7.9
multiple lacune	Male	1	0.4	1	0.3	24	8.5	56	23.1	12	23.5	94	8.2
	Female	0	0.0	2	0.7	7	2.6	19	7.0	7	12.1	35	3.0
	Total	1	0.2	3	0.5	31	5.6	75	14.6	19	17.4	129	5.6
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

Thrombosis

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
not recorded	Male	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	1	0.0
no thrombosis	Male	281	99.3	291	100.0	278	98.2	236	97.5	46	90.2	1132	98.4
	Female	288	99.3	279	100.0	267	99.3	265	97.1	55	94.8	1154	98.7
	Total	569	99.3	570	100.0	545	98.7	501	97.3	101	92.7	2286	98.6
thrombosis	Male	2	0.7	0	0.0	4	1.4	6	2.5	5	9.8	17	1.5
	Female	2	0.7	0	0.0	2	0.7	8	2.9	3	5.2	15	1.3
	Total	4	0.7	0	0.0	6	1.1	14	2.7	8	7.3	32	1.4
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

Cerebral Embolism

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
not recorded	Male	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	1	0.0
no embolism	Male	281	99.3	284	97.6	256	90.5	182	75.2	29	56.9	1032	89.7
	Female	288	99.3	275	98.6	255	94.8	235	86.1	42	72.4	1095	93.7
	Total	569	99.3	559	98.1	511	92.6	417	81.0	71	65.1	2127	91.7
embolism	Male	2	0.7	7	2.4	26	9.2	60	24.8	22	43.1	117	10.2
	Female	2	0.7	4	1.4	14	5.2	38	13.9	16	27.6	74	6.3
	Total	4	0.7	11	1.9	40	7.2	98	19.0	38	34.9	191	8.2
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

Cerebral Bleeding

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
not recorded	Male	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	1	0.0
no bleeding	Male	283	100.0	291	100.0	281	99.3	240	99.2	51	100.0	1146	99.7
	Female	290	100.0	278	99.6	268	99.6	272	99.6	58	100.0	1166	99.7
	Total	573	100.0	569	99.8	549	99.5	512	99.4	109	100.0	2312	99.7
cerebral bleeding	Male	0	0.0	0	0.0	1	0.4	2	0.8	0	0.0	3	0.3
	Female	0	0.0	1	0.4	1	0.4	1	0.4	0	0.0	3	0.3
	Total	0	0.0	1	0.2	2	0.4	3	0.6	0	0.0	6	0.3
Total	Male	283	100.0	291	100.0	283	100.0	242	100.0	51	100.0	1150	100.0
	Female	290	100.0	279	100.0	269	100.0	273	100.0	58	100.0	1169	100.0
	Total	573	100.0	570	100.0	552	100.0	515	100.0	109	100.0	2319	100.0

Thrombosis

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
no thrombosis	Male	126	99.2	100	100.0	136	97.8	115	96.6	25	96.2	502	98.2
	Female	131	99.2	129	100.0	128	99.2	102	98.1	17	89.5	507	98.8
	Total	257	99.2	229	100.0	264	98.5	217	97.3	42	93.3	1009	98.5
thrombosis	Male	1	0.8	0	0.0	3	2.2	4	3.4	1	3.8	9	1.8
	Female	1	0.8	0	0.0	1	0.8	2	1.9	2	10.5	6	1.2
	Total	2	0.8	0	0.0	4	1.5	6	2.7	3	6.7	15	1.5
Total	Male	127	100.0	100	100.0	139	100.0	119	100.0	26	100.0	511	100.0
	Female	132	100.0	129	100.0	129	100.0	104	100.0	19	100.0	513	100.0
	Total	259	100.0	229	100.0	268	100.0	223	100.0	45	100.0	1024	100.0

Cerebral Embolism

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
no embolism	Male	125	98.4	99	99.0	124	89.2	98	82.4	16	61.5	462	90.4
	Female	132	100.0	127	98.4	125	96.9	92	88.5	14	73.7	490	95.5
	Total	257	99.2	226	98.7	249	92.9	190	85.2	30	66.7	952	93.0
embolism	Male	2	1.6	1	1.0	15	10.8	21	17.6	10	38.5	49	9.6
	Female	0	0.0	2	1.6	4	3.1	12	11.5	5	26.3	23	4.5
	Total	2	0.8	3	1.3	19	7.1	33	14.8	15	33.3	72	7.0
Total	Male	127	100.0	100	100.0	139	100.0	119	100.0	26	100.0	511	100.0
	Female	132	100.0	129	100.0	129	100.0	104	100.0	19	100.0	513	100.0
	Total	259	100.0	229	100.0	268	100.0	223	100.0	45	100.0	1024	100.0

Cerebral Bleeding

		40-49yr		50-59yr		60-69yr		70-79yr		80yr -		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
no bleeding	Male	127	100.0	100	100.0	139	100.0	117	98.3	26	100.0	509	99.6
	Female	132	100.0	129	100.0	129	100.0	104	100.0	19	100.0	513	100.0
	Total	259	100.0	229	100.0	268	100.0	221	99.1	45	100.0	1022	99.8
cerebral bleeding	Male	0	0.0	0	0.0	0	0.0	2	1.7	0	0.0	2	0.4
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	2	0.9	0	0.0	2	0.2
Total	Male	127	100.0	100	100.0	139	100.0	119	100.0	26	100.0	511	100.0
	Female	132	100.0	129	100.0	129	100.0	104	100.0	19	100.0	513	100.0
	Total	259	100.0	229	100.0	268	100.0	223	100.0	45	100.0	1024	100.0



## XIII. Oral examinations

### XIII. Oral examinations

- 1) Caries
- 2) Periodontal index
- 3) Denture use
- 4) Tongue coat

Caries, periodontal index, and tongue coat were evaluated by a well trained dentist with a dental mirror and WHO CPI probe. Denture use was asked at oral examination on verbal.

#### 1) Caries

All teeth were classified into intact, decayed, filled, missing, or caries observation.

#### 2) Periodontal index

Periodontal indices (CPI score) on 10 index teeth (17/16, 11, 26/27, 36/37, 31, 46/47) were derived according to World Health Organization standard.

code 0 : healthy gingival tissue

code 1 : bleeding on probing

code 2 : presence of calculus or defective restoration margins

code 3 : presence of 4mm - 6mm pocket

code 4 : presence of more than 6mm pocket

(The highest code was given if two or more phenomena were found on same tooth.)

Missing

Others

#### 3) Denture use

Denture use was asked by a dentist on verbal.

No use

sometimes

always

#### 4) Tongue coat

Score of tongue coat was given by its area on the tongue dorsum.

score 0 : none visible

score 1 : less than one-third on the tongue dorsum

score 2 : less than two-third on the tongue dorsum

score 3 : more than two-third on the tongue dorsum

#### 5) Tongue wetness

Score of tongue wetness was determined by putting Elsalibo R on the tongue dorsum for 10 seconds.

#### 6) Bite force

Each subject clenched a pressure sensitive sheet (Dental PrescaleR 50H, GC Co. Ltd.) as hard as they could at the intercuspal position for 3 seconds.

Average bite force were determined by an image analyzer (Occuluzer R FPD703,GC Co. Ltd.).

1) Caries

The numbers of intact, filled, caries observation, decayed, and missing teeth were counted.

Number of intact teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	15.6	5.6	117	14.6	6.1	84	11.6	7.9	122	6.4	6.8	110	3.9	5.2	21	11.6	7.7	454
Female	13.8	5.1	123	12.0	6.1	104	9.7	6.6	104	5.2	5.3	86	2.4	4.6	12	10.3	6.7	429
Total	14.7	5.4	240	13.2	6.2	188	10.7	7.4	226	5.9	6.2	196	3.4	5.0	33	11.0	7.2	883

Number of filled teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	11.9	5.2	117	11.7	5.0	84	10.2	6.1	122	7.7	5.9	110	8.0	5.9	21	10.2	5.9	454
Female	13.7	4.7	123	13.7	5.2	104	13.2	5.6	104	11.7	6.4	86	5.4	4.9	12	12.9	5.6	429
Total	12.8	5.0	240	12.8	5.2	188	11.6	6.1	226	9.5	6.5	196	7.0	5.6	33	11.5	5.9	883

Number of caries observation teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.1	0.4	117	0.1	0.2	84	0.1	0.3	122	0.0	0.0	110	0.0	0.0	21	0.1	0.3	454
Female	0.1	0.3	123	0.0	0.2	104	0.0	0.2	104	0.0	0.0	86	0.0	0.0	12	0.0	0.2	429
Total	0.1	0.4	240	0.1	0.2	188	0.0	0.2	226	0.0	0.0	196	0.0	0.0	33	0.0	0.3	883

Number of decayed teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.3	0.8	117	0.4	1.1	84	0.3	1.9	122	0.5	1.0	110	0.8	2.1	21	0.4	1.3	454
Female	0.1	0.4	123	0.2	0.7	104	0.2	0.4	104	0.5	1.3	86	0.3	0.6	12	0.2	0.7	429
Total	0.2	0.7	240	0.3	0.9	188	0.2	1.4	226	0.5	1.1	196	0.6	1.7	33	0.3	1.1	883