Association of Co-morbidities and Altered Lipid Profile in Both Haemorrhagic and Ischaemic Strokes

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Introduction

- Stroke is a major health hazard in both developed and developing countries.

- It is the third highest cause of mortality after cancer and ischaemic heart disease.

- Among all the neurological diseases of adult life, the cerebrovascular disease clearly ranks first in frequency and importance.

Introduction - contd

- For primary prevention of stroke, identification of co-morbidities is essential.

- There are several known co-morbidities for stroke like hypertension, diabetes, dyslipidaemia and obesity.

Introduction - contd

- Among these, dyslipidaemia is one of the important co-morbidities for stroke.

- So, early detection of dyslipidaemia can prevent stroke in a number of patients.

Objective

- To identify the co-morbidities of different types of strokes, and to find out association between stroke and lipid profile.

Methodology

Study design
Observational cross-sectional study.

Place of study
Department of Medicine,
Sher-e-Bangla Medical College Hospital,
Barisal.

Study period
From April 2013 to September 2013 for a period of 6 months.

Methodology - contd

Study population

The study was done on a total of 100 patients suffering from stroke, that were taken from the admitted patients under different Medicine units of SBMCH, Barisal.

Methodology - contd

Inclusion criteria:

- Age of the patients was ≥20 years.
- Both male and female patients.
- Patient presenting with acute or recurrent stroke, confirmed by CT scan.
- Blood sample was collected before starting lipid lowering drug.
- Patient or attendant who gave informed written consent.

Methodology - contd

Exclusion criteria:

- Patients with transient ischaemic attack.
- Patient that dropped out or expired before investigations were completed.
- Patient already on anti lipid drug.

Methodology - contd

Study procedure:

- After admission at the hospital, stroke patients were included after confirmation by CT scan of brain.
- History was taken from the patients or the attendants.
- Co-morbidities were recorded in a pre designed data collection sheet.
- Fasting lipid profile was measured in case of every stroke patient.

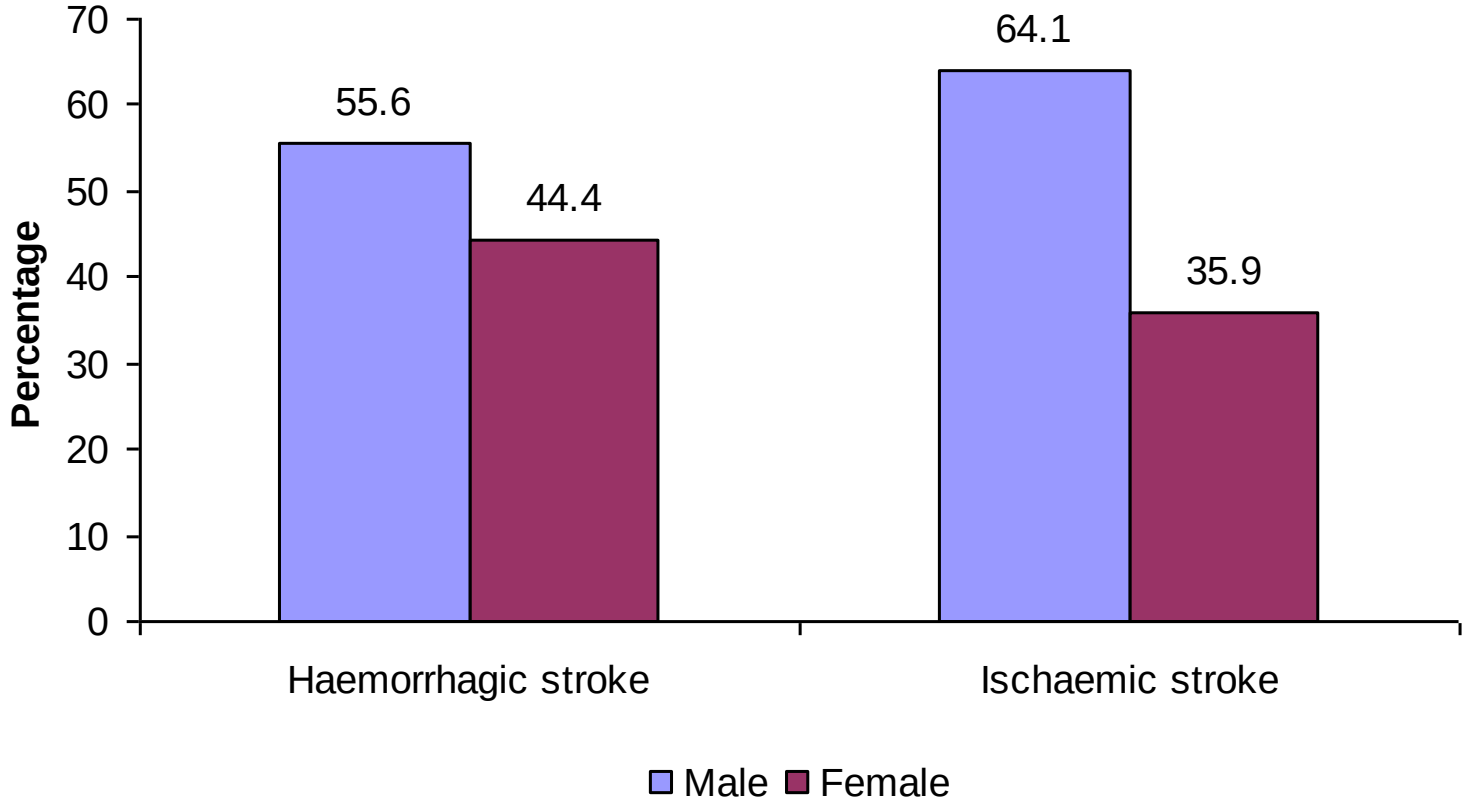
Results

Table 1: Distribution of study subjects by type of stroke

Type of stroke	Frequency	Percentage
Haemorrhagic	36	36.0
Ischaemic	64	64.0
Total	**100**	**100.0**

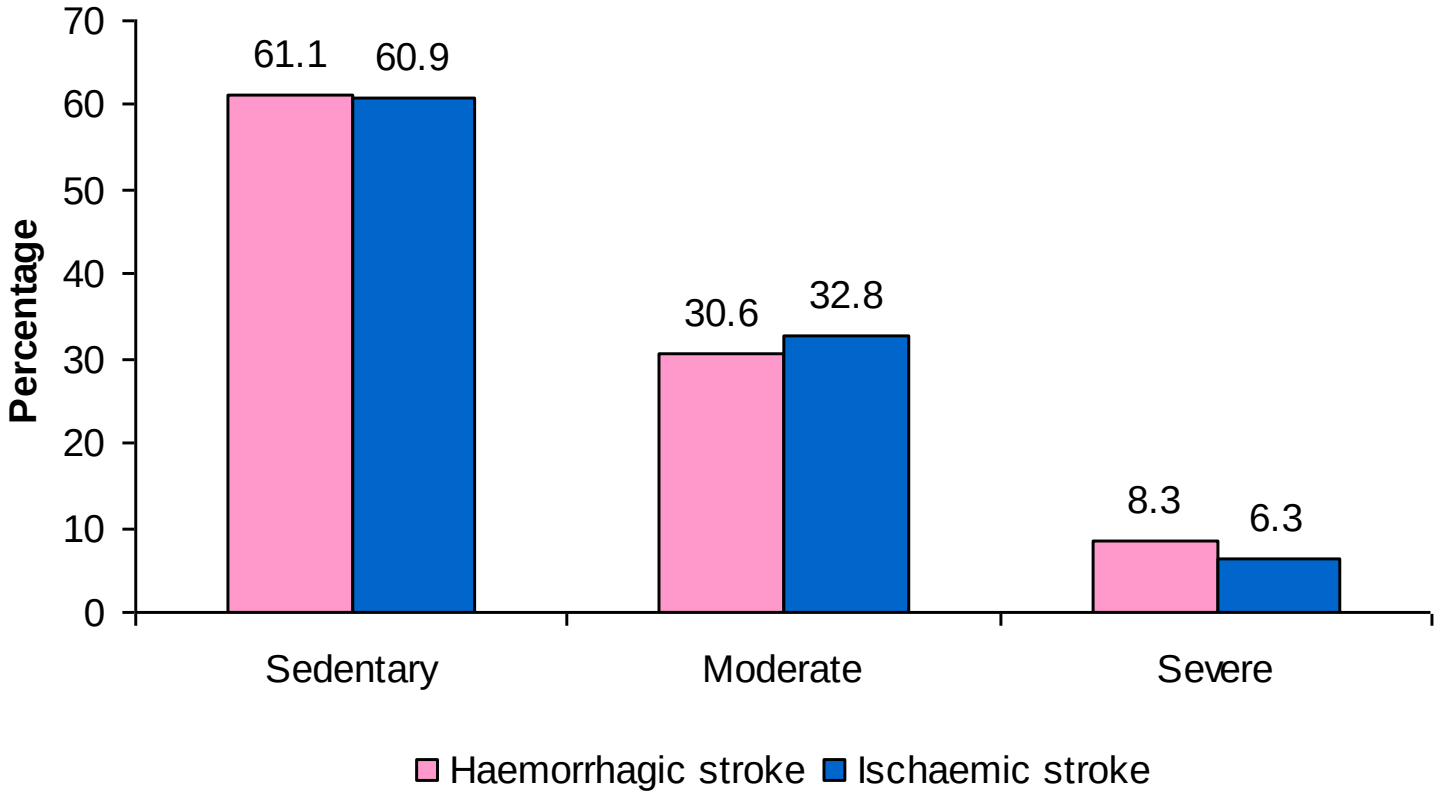
Table 2: Distribution of study subjects by age

Age	Haemorrhagic stroke (n=36)	Ischaemic stroke (n=64)	p-value
≤ 40 years	0 (0.0)	6 (9.4)	0.160
41 -50 years	3 (8.3)	10 (15.6)	
51 -60 years	13 (36.1)	19 (29.7)	
61 -70 years	15 (41.7)	17 (26.6)	
> 70 years	5 (13.9)	12 (18.8)	
Total	36 (100.0)	64 (100.0)	



p-value : 0.402

Figure I: Distribution of study subjects by sex



p-value : 0.914

Figure 2: Distribution of study subjects by nature of work

Table 3: Distribution of study subjects by past history

Past history	Haemorrhagic stroke (n=36)	Ischaemic stroke (n=64)	p-value
Diabetes	3 (8.3)	19 (29.7)	0.013
Hypertension	17 (52.8)	25 (39.1)	0.427
Stroke	3 (8.3)	9 (14.1)	0.397
Ischaemic heart disease	5 (13.9)	2 (3.1)	0.043
Dyslipidaemia	4 (11.1)	9 (14.1)	0.674

Table 4: Distribution of study subjects by family history

Family history	Haemorrhagic stroke (n=36)	Ischaemic stroke (n=64)	p-value
Hypertension	8 (22.2)	21 (32.8)	0.263
Diabetes mellitus	8 (22.2)	14 (21.9)	0.968
Ischaemic heart disease	6 (16.7)	7 (10.9)	0.414
Stroke	14 (38.9)	22 (34.4)	0.652

Table 5: Distribution of patients by risk factors

Risk factors	Haemorrhagic stroke (n=36)	Ischaemic stroke (n=64)	p-value
Smoking	12 (33.3)	25 (39.1)	0.569
Alcohol	1 (2.8)	1 (1.6)	0.677
OCP	5 (13.9)	9 (14.1)	0.981

Table 6: Distribution of study subjects by lipid profile

Lipid profile	Haemorrhagic stroke (n=36)	Ischaemic stroke (n=64)	p-value
Total cholesterol (TC)	173.47 ± 61.96	178.22 ± 54.79	0.693
HDL	42.94 ± 6.14	43.31 ± 8.65	0.820
LDL	118.80 ± 36.32	125.17 ± 54.45	0.533
Triglycerides (TG)	155.38 ± 73.74	150.71 ± 96.31	0.802

Table 7: Distribution of study subjects by type of altered lipoproteins in stroke patients

Lipid profile	Frequency	Percentage
Total cholesterol (TC)	54	54.0
HDL	33	33.0
LDL	62	62.0
Triglycerides (TG)	25	25.0

Conclusion

The greater portion of the total stroke patients was ischaemic, and the smaller portion was haemorrhagic.

Older age, male sex, sedentary work, history of hypertension, diabetes mellitus and dyslipidaemia are susceptible to be affected in stroke.

Conclusion - contd

A number of co-morbidities were observed in the present study, among which hypertension is the most important factor that needs maximum concern.

In types of lipoproteins, maximum study subjects had altered LDL level.

Limitation

- The study was conducted in a single centre in Barisal city which may not be representative for the whole population.

- The sample size was small in the present study, which is also a limitation.

Recommendation

- Large scale study should be conducted.
- Multi-centered study should be carried out.
- Prospective longitudinal studies are needed.

Thank You