



Evaluation of Antithrombotic and Cardiovascular Medication reconciliations in Multiple Ischemic CVA Patients Using Echocardiography, MRI Brain, and 24-Hour Holter Monitoring

Dr.NabajitSarkar⁽¹⁾, Anwasha Bandyopadhyay⁽²⁾, Dr Sabnam Ara Begum⁽³⁾, Dr Tarun Pal

¹. Post Doctorate Trainee, ³ Associate Professor, Department of Clinical Pharmacology, R G Kar Medical College Kolkata, 700004, India

². PhD scholar, ³ Faculty, Shoolini University, Himachal Pradesh-173229, India

Date of Submission: 08-06-2024

Date of Acceptance: 18-06-2024

I. INTRODUCTION

Recurrent ischemic cerebrovascular accidents (CVAs) represent a critical challenge in clinical practice, often necessitating adjustments to antithrombotic and cardiovascular medications to prevent further incidents and improve patient outcomes. Optimizing these therapeutic strategies through the use of diagnostic tools such as echocardiography, MRI brain imaging, and 24-hour Holter monitoring can provide vital insights into the patient's condition and guide effective treatment adjustments.

II. METHODS

Study Design

This retrospective cohort study was conducted at R G Kar Medical College from January 2018 to December 2023, involving 120 patients with multiple ischemic CVAs who underwent therapeutic reconciliation and dose adjustment, necessary changes to their medication regimens, in the Department of Clinical Pharmacology and Therapeutics OPD.

Patient Selection

Inclusion criteria:

- History of multiple ischemic CVAs

- Adjustments to antithrombotic (aspirin, clopidogrel, apixaban, dabigatran)⁽¹⁾⁽²⁾⁽³⁾ and cardiovascular medications (carvedilol, metoprolol, nebivolol, bisoprolol, amiodarone)⁽⁴⁾

Exclusion criteria:

- History of hemorrhagic stroke
- Severe renal or hepatic impairment

Data Collection

Data were collected from clinical records, including:

- Echocardiography: Left ventricular ejection fraction (LVEF), left atrial size
- MRI brain: Number of new infarcts
- 24-hour Holter monitoring: Frequency of arrhythmia episodes
- Quality of life: Assessed using the Stroke-Specific Quality of Life (SS-QOL) scale

III. STATISTICAL ANALYSIS

Paired t-tests were employed to compare pre- and post-adjustment data. Regression analysis was utilized to evaluate the relationships between medication adjustments and clinical outcomes. Statistical significance was determined at $p < 0.05$.

IV. RESULTS

Baseline Characteristics

(Table 1 provides baseline demographic and clinical characteristics of the study population.)

Variable	Value
Age (mean \pm SD)	68.4 \pm 10.2 years
Gender (M/F)	72/48
Previous CVAs (mean)	2.5
Comorbidities	Hypertension (84%), Diabetes (52%)
Baseline medications	Various combinations

Table 1. Baseline Demographic and Clinical Characteristics.



Medication Adjustments

(Table 2 details the medication adjustments.)

Medication	Baseline (%)	Post-adjustment (%)
Aspirin	60	35
Clopidogrel	55	30
Apixaban	20	50
Dabigatran	15	40
Carvedilol	30	45
Metoprolol	25	40
Nebivolol	20	35
Bisoprolol	25	40
Amiodarone	35	50

Table 2. Distribution of Medication Adjustments.

Clinical Outcomes

CVA Recurrence

(Figure 1 shows the reduction in ischemic CVA recurrence.)

Recurrence	Baseline	Post-adjustment
Mean CVAs	1.8	0.5

Figure 1. Reduction in Ischemic CVA Recurrence.

Echocardiography Findings

(Table 3 summarizes echocardiographic improvements.)

Parameter	Baseline (mean ± SD)	Post-adjustment (mean ± SD)	p-value
LVEF (%)	50.3 ± 7.6	56.7 ± 6.4	<0.05
Left atrial size (mm)	41.5 ± 5.3	38.2 ± 4.8	<0.05

Table 3. Echocardiographic Improvements.

MRI Brain Findings

(Figure 2 illustrates the reduction in new infarcts.)

Parameter	Baseline (mean ± SD)	Post-adjustment (mean ± SD)	p-value
New infarcts	2.1 ± 1.2	0.8 ± 0.6	<0.05

Figure 2. Reduction in New Infarcts.

Holter Monitoring

(Table 4 displays the reduction in arrhythmia episodes.)

Parameter	Baseline (mean ± SD)	Post-adjustment (mean ± SD)	p-value
Arrhythmia episodes	7.4 ± 3.1	3.2 ± 2.4	<0.01

Table 4. Reduction in Arrhythmia Episodes.

Quality of Life

(Figure 3 shows the improvement in SS-QOL scores.)

Parameter	Baseline (mean ± SD)	Post-adjustment (mean ± SD)	p-value
SS-QOL Score	56.2 ± 8.5	70.4 ± 7.2	<0.01

Figure 3. Improvement in SS-QOL Scores.



V. DISCUSSION

The study demonstrates that adjusting antithrombotic and cardiovascular medications significantly reduces the recurrence of ischemic CVAs. Patients who were transitioned to apixaban or dabigatran experienced fewer CVAs and better outcomes in cardiac function and arrhythmia control. The use of echocardiography, MRI brain imaging, and 24-hour Holter monitoring provided comprehensive insights into the efficacy of these adjustments. The improvement in SS-QOL scores underscores the positive impact on patients' quality of life.

VI. CONCLUSIONS

Optimizing antithrombotic and cardiovascular therapy based on comprehensive cardiovascular and cerebrovascular assessments significantly reduces ischemic CVA recurrence and enhances overall quality of life. This study supports the use of apixaban or dabigatran in combination with beta-blockers and amiodarone as an effective strategy for managing patients with recurrent ischemic CVAs.

REFERENCES

- [1]. Li, J., & Wang, H. (2022). Antithrombotic therapy in stroke prevention: An update. *Stroke Journal*, 53(7), 1321-1332. doi:10.1161/STROKEAHA.122.034725.
- [2]. Patel, M. R., et al. (2020). Efficacy of apixaban versus aspirin in patients with atrial fibrillation. *New England Journal of Medicine*, 372(15), 1383-1392. doi:10.1056/NEJMoa1611921.
- [3]. Bousser, M. G., et al. (2018). Dabigatran in secondary stroke prevention. *Stroke Research and Treatment*, 2018, 5609238.
- [4]. Ahmad, Y., et al. (2021). Beta-blockers in cardiovascular disease management. *Cardiology Clinics*, 39(1), 47-63. doi:10.1016/j.ccl.2020.09.002.