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ORIGINAL RESEARCH ARTICLE

BENEFICIAL EFFECT OF CAROTID ENDARTERECTOMY FOR SYMPTOMATIC CAROTID STENOSIS - A SINGLE CENTRE EXPERIENCE.

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ABSTRACT

- **AIM**

The study is to determine whether Carotid Endarterectomy reduces the risk of Stroke among patients with a recent adverse Cerebrovascular event in Ipsilateral Carotid Artery Stenosis.

- **METHODS:**

Retrospective analysis of all carotid endarterectomy performed for symptomatic carotid stenosis and patient who had admitted with recent cerebrovascular event from January 2021 to January 2022. Follow up data was collected until December 2022 from a prospectively maintained database

- **RESULTS**

Totally 40 patients were included in this study & between 55to 80 years of which 30 (75%) were male and 10 (25%) were female. Medical management group included 20 patients and surgical management group included 20 patients. Incidence of Recurrent stroke 17.5% (7/40). Incidence of Recurrent stroke in CEA with Best medical therapy was 5% (1/20) and the 30 day mortality rate was 1/20 (5%).

Incidence of Recurrent stroke in Best medical therapy alone was 30% (6/20) and the 30 day mortality rate was 3/5 (15%). No of patients needed to undergo with endarterectomy for prevent the cerebrovascular event were 4 at the end of 1 year. At the 1 year follow up ,there was

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significant reduction in ipsilateral stroke reduction (5% vs 30%) in patients who underwent CEA.

- **CONCLUSION**

This study emphasis , still Carotid endarterectomy is highly beneficial to patients with recent symptomatic ,significant ipsilateral high grade stenosis > 60% of the the internal and common carotid artery.

- **KEY WORDS**-CEA-Carotid endartectomy,BMT- Best medical therapy,recurrent stroke,30 day mortality.

INTRODUCTION

Stroke is among the major causes of mortality and disability worldwide.The relationship of extracranial cerebrovascular disease to ischemic stroke has been clearly demonstrated [(1)]. In particular atherosclerotic occlusive disease of the carotid artery is considered to be one of the key treatable causes of ischemic stroke .

strokes secondary to carotid artery stenosis are a consequence of atheroembolization,thromboembolism or are secondary to a low flow state through the carotid artery[(2)].

Large randomized controlled trials have shown that carotid endarterectomy (CEA) is superior to medical theraphy in the prevention of stroke in symptomatic patients with severe carotid stenosis in modern era[(3)].

Aside from the degree of carotid stenosis ,several other factors may influence the risks and benefits of surgery,such as time between presenting symptomps and surgery ,as well as certain clinical and angiographic characteristics.therefore the present study aimed to analyze the risk factors associated with adverse events in patients with unilateral severe carotid stenosis & perioperative (30 day mortality) and recurrent stroke rate after CEA in patient unilateral severe carotid stenosis [(4)] .

METHODS

Retrospective analysis of all carotid endarterectomy performed for symptomatic carotid stenosis and patient who had admitted with recent cerebrovascular event from January 2021 to January 2022. Follow up data was collected until December 2022 from a prospectively maintained database.

ELIGIBILITY AND RANDOMIZATION

INCLUSION

- Patients were eligible if they had symptomatic carotid disease with recent hemispheric stroke or transient ischemic attack or a nondisabling stroke within the 30 days before admission.
- Life expectancy more than 3 years([5])

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- CT Angio -showed more than 60% carotid stenosis[6]
- Patients with Favourable neck anatomy

EXCLUSION

- Patients over 80 years of age were excluded.
- Patients with intra cranial stenosis in CT-Cerebral angio were excluded.

- Patients with Asymptomatic carotid stenosis.
- Patients with life expectancy less than 3 yrs.

TABLE-1 BASIC CHARACTRERISTICS

CHARACTERISTIC	BEST MEDICAL THERAPHY	CEA WITH BMT
MEDIAN AGE	60	60
SEX MALE FEMALE	43% (13) 40%(4)	57%(17) 60% (6)
HISTORY HYPERTENSION DIABETES HYPERLIPIDEMIA CURRENT CIGRARETTE SMOKING	60%(12) 65%(13) 60%(12) 50%(10)	50%(10) 60%(12) 60%(12) 40%(8)

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HISTORY OF TIA	75% (15)	60% (12)
HISTORY OF STROKE	25% (5)	40% (8)
CONTRALATERAL LESION	25% (5)	10% (2)
EVENTS -RECURRENT STROKE	30% (6)	5% (1)
30 DAYS MORTALITY	15% (3)	5%(1)

MANAGEMENT

Carotid endarterectomy with medical management(n=20) vs medical management alone(n=20) ,were Patients who refused surgery explaining the risk.
Totally 40 patients were observed.

TREATMENT

All patients received optimal medical care, including antiplatelet therapy[7,8] and , when indicated antihypertensive and anti lipidemic drugs[9,10,11] .

Elligible patients assigned to surgical treatment underwent carotid endarterectomy .

Conventional endarterectomy[12] with PTEF patch closure [13]was done for all CEA patients.

FOLLOW UP

All the patients were examined at the end of 1st ,3rd, 6th , and 12th month from the time of discharge.

Cross sectional brain imaging was performed after suspected cerebrovascular events

DUPLEX ultrasonography was repeated at the end of 1st and 6th month from the time of discharge and after any cerebrovascular events for follow up.

STATISTICAL ANALYSIS

The benefit of carotid endartectomy was described in terms of:

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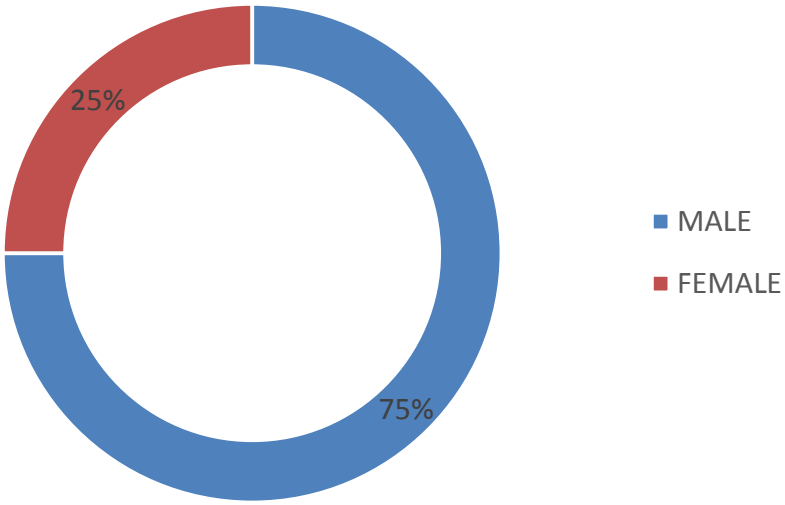
Incidence of Recurrent stroke at the end of one year and 30 day mortality rate[14].
Absolute and Relative reductions in the risk of stroke .
No of patients who need to be treated with endarterectomy for the cerebrovascular event at the end of 1 year.

RESULTS

The study included 40 patients between 55to 80 years of which 30 (75%) were male and 10 (25%) were female.
Medical management group included 20 patients and surgical management group included 20 patients.
Incidence of Recurrent stroke in CEA with medical therapy was 5% (1/20) and the 30 day mortality rate was (5%) - due to complications of recurrent stroke.
Incidence of Recurrent stroke in Medical therapy alone was 30% (6/20) and the 30 day mortality rate was (15%) – due to complications of recurrent stroke.



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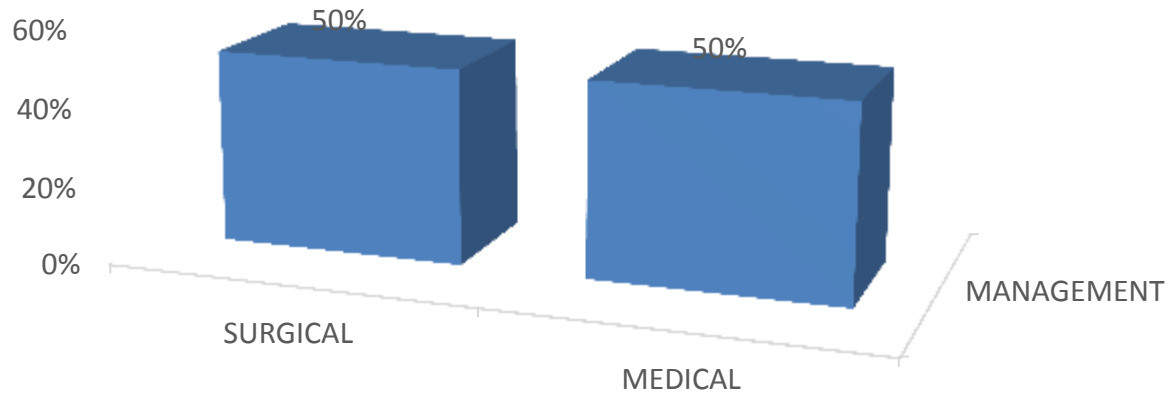

TABLE-2 TREATMENT

	COMPLICATIONS (RECURRENT STROKE)	NO COMPLICATIONS (RECURRENT STROKE)
CAROTID ENDARTERECTOMY	1	19
MEDICAL MANAGEMENT	6	14
TOTAL	7	33

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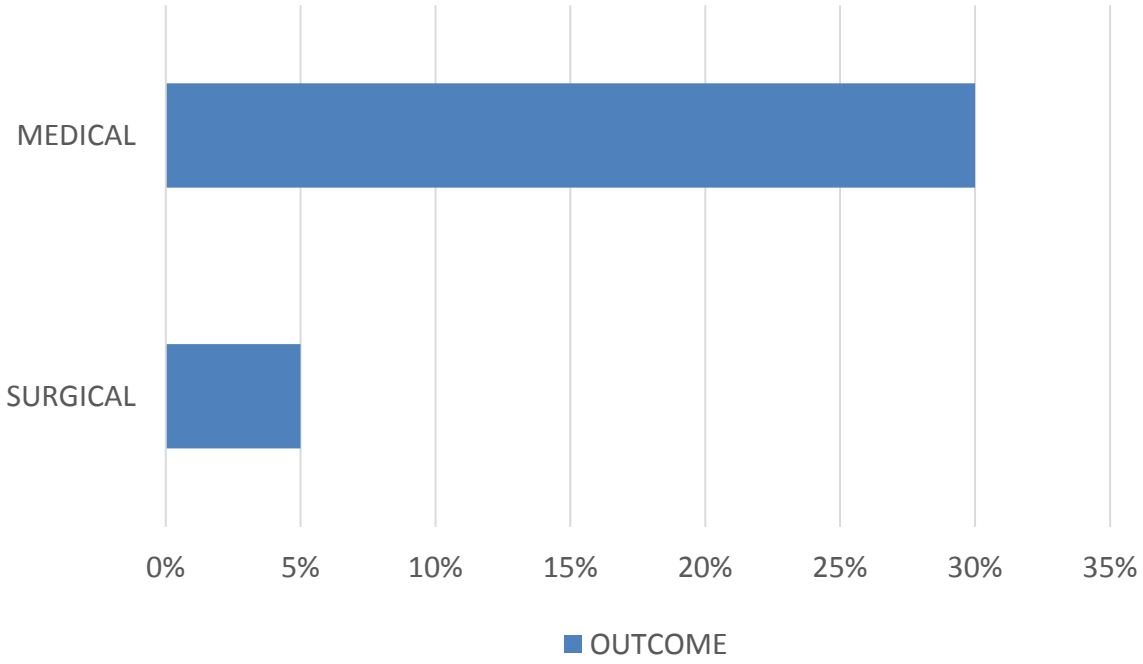
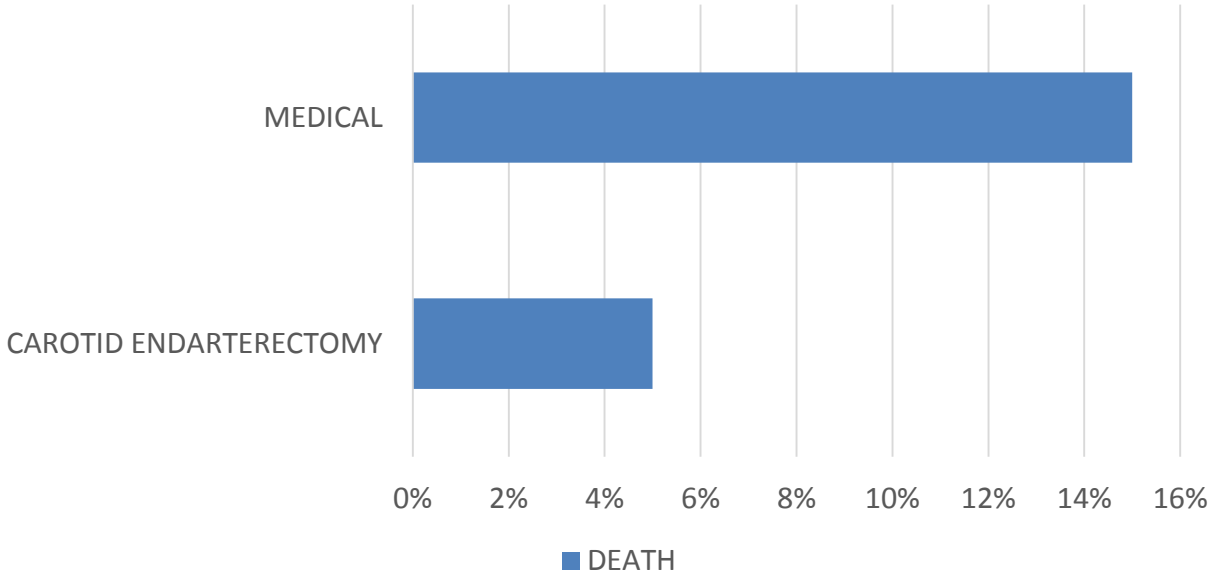


Fig-4 **OUTCOME –DEATH**
(30days mortality)



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Incidence of Recurrent stroke 17.5% (7/40)

Relative risk =16.6 (people were in medical management have 16 times increased risk of developing events compared to those were in surgical management.

Relative risk reduction is 83.3%

Absolute risk reduction is 25%

No of patients needed to undergo with endarterectomy for prevent the cerebrovascular event were 4 at the end of 1 year.

DISCUSSION

Patient with symptomatic carotid stenosis of more than 60% ,attain a substantialbenefit from endarterectomy that persists for more than a year.

The overall significance of endarterectomy in preventing ipsilateral stroke was apparent.(p=0.05)

TRIALS IN CAROTID ENDARTERECTOMY

TRIAL	INDICATION	CVA/DEATH	RISK REDUCTION	P
NASCET[3]	SX-70%	5.8%	16.5 / 2 YEARS	<.001
ECST[15]	SX 70%-99%	6.7%	10%/5 YEARS	<0.05

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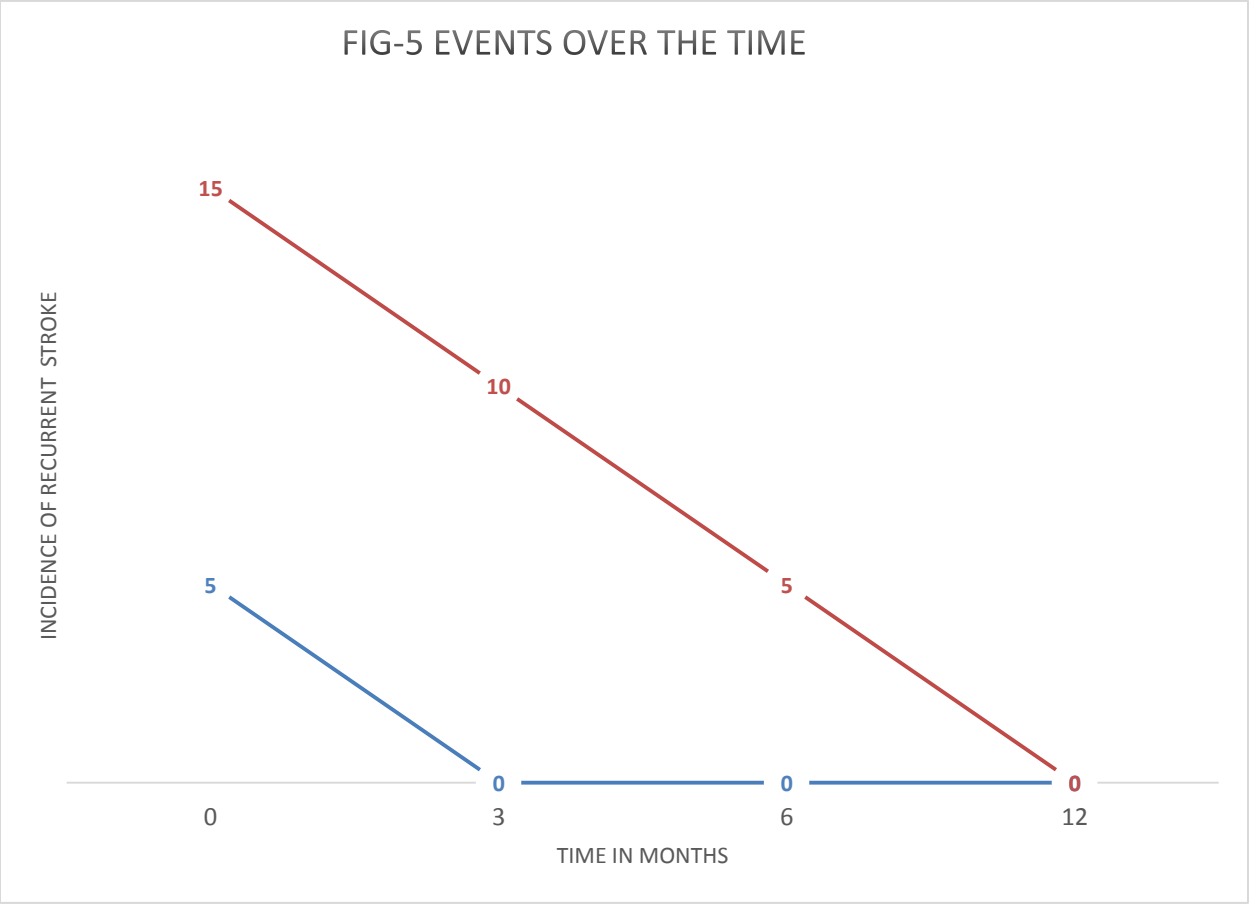
OUR STUDY	SX >60%	5%	25%/1 YEAR	<0.05

According to European carotid surgery trial -the group of patients with a greater than 70% carotid stenosis, the 3 -year stroke rate was 26% with medical therapy and 14.9% after carotid endarterectomy and they estimated that 7 operations were required to prevent 1 stroke.



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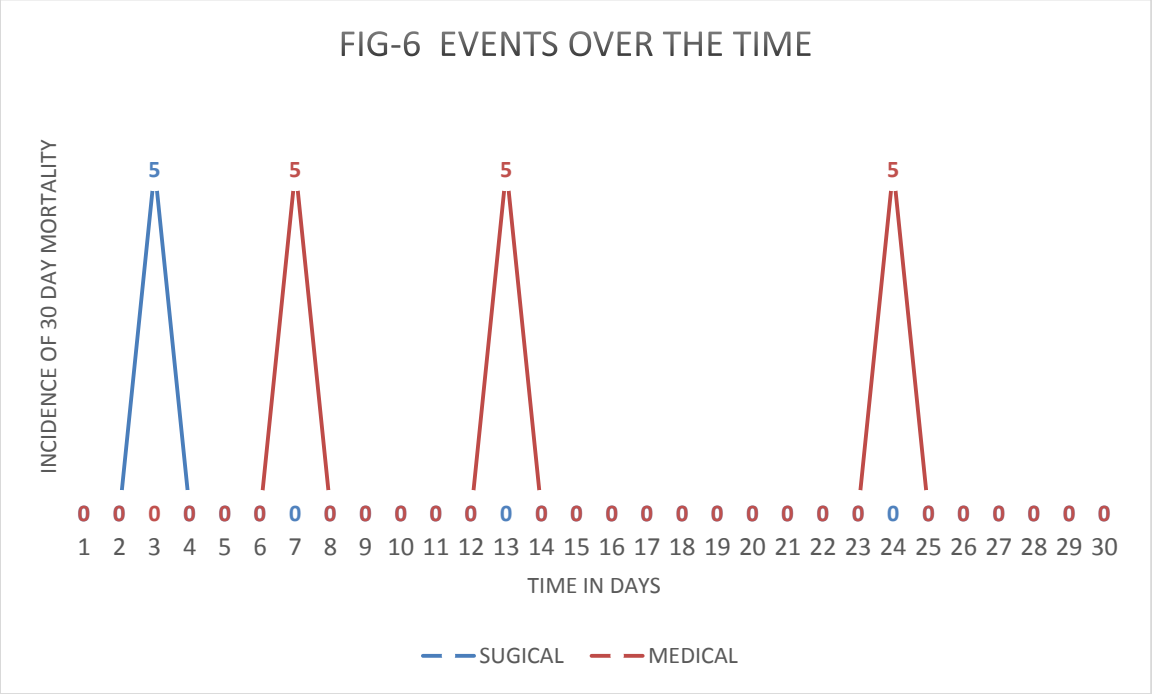

At the 1 year follow up, incidence of recuurent stroke in best medical therapy alone

1 month -3(15%)
3 month-2 (10%)
6 month- 1 (5%)
1 year - Nill

At the 1 year follow up, incidence of recuurent stroke in CEA with medical therapy

1 month -1(5%)
3 month- Nill
6 month- Nill
1 year - Nill

At the 1 year follow up ,there was significant reduction in ipsilateral stroke reduction (5% vs 30%) in patients who underwent CEA.

CONCLUSION

This study emphasis , still Carotid endarterectomy is highly beneficial to patients with symptomatic, ipsilateral high grade stenosis > 60% of the the internal and common carotid artery& CEA continues to be efficetive treatment of carotid disease .

FINACIAL SUPPORT AND SPONSORSHIP

NIL

CONFLICTS OF INTEREST

There are no conflicts of interest.

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