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RESEARCH ARTICLE

A PROSPECTIVE STUDY ON ACUTE LIMB ISCHEMIA - PRESENTATION, MANAGEMENT, OUTCOME- OUR INSTITUTIONAL EXPERIENCE

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Abstract

Introduction: Acute limb ischemia (ALI) a major vascular emergency defined as sudden decrease in limb perfusion that threatens limb viability. Prompt early recognition and management is need of hour to reduce the morbidity and mortality associated with ALI. The aim of this study is to emphasis on presentation, management and outcome of ALI for better understanding of disease and management

Materials And Method:

1. Period Of Study - 10months from OCT 2021 - JULY 2022
2. Total No Of Patients – 100
3. Study method – prospective observational study

Results: The study enrolled 100 patients with sudden onset of six Ps (pain, pallor, poikilothermia, pulselessness, paresthesia, paralysis) and treated within 14 days of onset. Mean age group was 47.32 (18-80yrs) and 72% were male and 28% female, among which 66% were lower limb and 34% upper limb ALI. 26%class I, 18% class IIa, 32%class IIb, 24% class III. All patients were primarily treated with anticoagulation and 26 recovered. 36 patients had systemic lytic therapy with inj. Alteplase. 13 CDT were performed. 23 patients underwent thrombo/embolectomy with a balloon catheter (Fogarty). 15 patients underwent surgical bypass following lytic therapy and had successful revascularization of limb. 39 patients finally ended up with amputation in spite of intervention. 4 patients died and all 4 had saddle embolus with B/L LL ALI.

Conclusion: In patients presenting with ALI, Major limb salvage ability factors – type and class of ischemia, etiogical factor, time of presentation to vascular specialist.Time is essence in salvaging the limb in ALI – act FAST.Class III ALI interventions have limb salvage ability rate of 17%, reduced the level of amputation and promotes stump healing- decreasing the morbidity.

Introduction:-

Acute limb ischemia (ALI) accounts for 40- 60% of vascular emergencies in causality.It is the result of a sudden deterioration in the arterial supply to the limb. Excluding trauma and iatrogenic causes, there are two main reasons

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for acute ischemia to occur- arterial embolism and thrombosis. One of toughest challenge for a vascular specialist as it is associated with high morbidity and mortality. A variety of modalities are available, including anticoagulation, operative intervention, thrombolysis, and mechanical thrombectomy. Appropriate mode of treatment is necessary for outcome of the patient

Aim & Objective:-

To emphasis on presentation, management and outcome of ALI for better understanding of disease and management

Methods And Materials:-

1. Period Of Study - 10months from OCT 2021 - JULY 2022
2. Total No Of Patients – 100
3. Study method – prospective observational study

INCLUSION CRITERIA	EXCLUSION CRITERIA
Patient with all class of ALI both UL and LL, >18yrs	ALI associated with trauma
Patient with all comorbidities	ALI with gangrene

Patient Selection And Endpoint:

1. Period of follow up - 3 months to 1 year
2. Primary endpoint -

a. improvement in ABI,
b. pulse status,
c. symptom improvement

Secondary endpoints –

a. limb salvageability,
b. amputation and
c. death.

Detailed analysis of the patients, treatment and outcome was analysed and results were tabulated.

Results:-

I -Age And Sex:

S.NO	VARIABLES	NUMBERofn(n=100)
1	AGE	47.3yrs
2A	MALE	72
B	FEMALE	28

Table 1:-

1. Mean age group in the study was 47.3 years with youngest being 19 yrs.
2. Upper limb ischemia was comparatively more in female (n – 16) – 57%

II - Limb & Bilaterality

3A	UPPER LIMB	34
B	LOWER LIMB	66
4	BILATERALITY	7

Table – 2:-

1. Bilateral presentation was seen exclusively in lower limb
2. 4 patients has saddle embolus presenting as aortoiliac occlusion – Male – 2 , female - 2

Comorbidities

1	DM	43
2	HTN	16
3	OBESITY BMI>30	12
4	CARDIAC	36
5	CVA	8
6	CKD	2
7	NO COMRBIDITIES	28

Table – 3:-

1. DM and CAD was the chief risk factors
2. 68 patients had more than 2 comorbidities as risk factor

IV - Substance Abuse

ABUSE	TOTAL	MALE	FEMALE
TOBACCO	63	57	6
ALCOHOL	54	51	3
BOTH	48	45	3

Table – 4:-

1. Tobacco abuse was the major risk factor
2. 12 Patients with no h/o any comorbidities and addiction developed ALI

V- Level Of Occlusion

1. Commonest level of occlusion in our study is – FEMPOP occlusion – 28%
2. In upper limb axillobrachial occlusion was the commonest presentation

Table 5:-

UPPER LIMB		
1	SCAOCCLUSION	9
2	AXILLO BRACHIAL OCCLUSION	18
3	INFRABRACHIAL OCCLUSION	7
LOWER LIMB		
4	AIO/ILIACOCCLUSION	26
5	FEMPOPOCCLUSION	28
6	TIBIALOCCLUSION	12

1. Commonest level of occlusion in our study is – FEMPOP occlusion – 28%
2. In upper limb axillobrachial occlusion was the commonest presentation

VI- Level Of Occlusion And Class Of Ischemia

UPPER LIMB			CLASS I	CLASS IIA	CLASS IIB	CLASS III
1	SCAOCCLUSION	9	2	1	4	2
2	AXILLO BRACHIAL OCCLUSION	18	5	5	5	3
3	INFRABRACHIAL OCCLUSION	7	6	1	-	-
	TOTAL	34	13	7	9	5
LOWER LIMB						
4	AIO/ILIACOCCLUSION	26	4	3	8	11
5	FEMPOPOCCLUSION	28	5	4	12	7
6	TIBIALOCCLUSION	12	4	4	3	1
		66	13	18	23	19
	GRAND TOTAL	100	26	18	32	24

1. Commonest Class of ischemia is class IIB

VII- Type Of Ischemia

SNO	TYPE OF ISCHEMIA	TOTAL	UL	LL
1	ACUTE LIMB ISCHEMIA	40	18	22
2	ACUTE ON CHRONIC LIMB ISCHEMIA	60	16	44

Table – 7:-

1. 60% of patients presented with prior claudication or wasting of limb accounting for acute on chronic limb ischemia

VIII- Time Of Presentation

S NO	TIMING	TOTAL	CLASS I	CLASS II A	CLASS II B	CLASS III
1	SAMEDAY	15	8	5	1	1
2	2-5days	54	16	11	18	9
3	5-10days	26	2	2	11	11
4	10-14days	5			2	3

Table – 8:-

1. Most of patient presented to vascular surgeon between 2—5 days and 5- 10 days
2. Delay in referral and native treatment was the prime reason .

IX - Etiology:

SNO	ETIOLOGY	TOTAL	UL	LL
1	EMBOLISM	30	16	14
2	THROMBOSIS	70	18	52

Table 9.1:-

Embolism

S NO	ETIOLOGY	TOTAL	UL	LL
1	CARDIAC	19	10	9
2	NON CARDIAC	11	6	5

Table 9.2:-

Thrombosis

S NO	ETIOLOGY	TOTAL	UL	LL
1	ATHEROSCLEROSIS+ ARTERITIS	35	7	28
2	ATHEROSCLEROSIS	19	4	15
3	ARTERITIS	15	5	10
4	IONOTROPE INDUCED	2	2	-

Table 9.3:-

X- Management Strategies:

S NO	MANAGEMENT	TOTAL	UL	LL
1	ANTICOAGULATION ALONE	26	18	8
2	LYSIS ALONE	28	9	19
3	MECHANICAL THROMBECTOMY	23	5	18
4	LYSIS +BYPASS	15	2	13
5	LYSIS+ ENDOVASCULAR	8	-	8

Table – 10:-

1. Lytic therapy and thrombectomy remains the main stay of treatment in ALI
2. InjAlteplase was the drug of choice for lysis
3. Lytic therapy followed by surgical bypass and endovascular have showed good limb salvageability in acute on chronic patients

XI- Limb Salvageability

XI.1 Class Of Ischemia And Salvageability Rate

SNO	CLASS OF ISCHEMIA	TOTAL	LIMB SALVAGED	SUCCESS RATE
1	ALICLASSI	26	26	100%
2	CLASSIIA	18	14	77%
3	CLASSIIB	32	17	56%
4	CLASSIII	24	4	17%
TOTAL		100	61	61%

Table 11.1:-

XI.2 Etiology And Limb Salvageability

S NO	ETIOLOGY	TOTAL	LIMB SALVAGED	SUCCES RATE
1	EMBOLISM	30	22	73%
2	THROMBOSIS	70	39	55%

Table 11.2:-

XI.3 - Time Of Presentation And Limb Salvageability

S NO	TIMING	TOTAL	LIMB SALAVAGED	SUCCESS RATE
1	SAMEDAY	15	13	88%
2	2-5days	54	39	72%
3	5-10days	26	8	31%
4	10-14days	5	1	20%

Table – 11.3:-

1. Delay in presentation to vascular specialist has drastically reduced the success rate in salvaging the limb
2. Death was observed in 4 patients

XII – Level Of Amputation:

S NO	LEVEL OF AMPUTATION	TOTAL	SCA	AXBR	AIO/IO	FEMPOP	TO
1	ABOVE ELBOW	1	1				
2	BELOW ELBOW	1		1			
3	ABOVE KNEE	18			9	7	2
4	BELOW KNEE	19			5	11	3

Table 12:-

1. Early diagnosis and intervention has reduced the level of amputation and augmented the stump healing
2. Amputation rate in our study in ALI was 39%

Conclusion:-

1. Be careful if you have >2 comorbidities with tobacco abuse
2. Thrombosis is the most common pathological factor
3. Atherosclerosis with arteritis is major etiology factor
4. Limb salvage ability rate is more in embolism than thrombosis (73%vs55%)
5. Major limb salvage ability factors – type and class of ischemia, etiogical factor, time of presentation to vascular specialist
6. Adequate IEC regarding ALI needed for early referral and reduce morbidity and mortality
7. Time is essence in salvaging the limb in ALI – act FAST
8. Class III ALI interventions have limb salvage ability rate of 17%, reduced the level of amputation and promotes stump healing- decreasing the morbidity

Conflict Of Interest –

Nil.

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