

Therapeutic Comparison of Aspirin and Pentoxifylline in Elderly Patients with PVD- Associated Claudication**S. Aishwarya¹, G. Vinayagam², S. Raasiga³**¹Post Graduate, Department of General Surgery, Sri Venkateshwaraa Medical College Hospital and Research Centre, Pondicherry, India²Professor, Department of General Surgery, Sri Venkateshwaraa Medical College Hospital and Research Centre, Pondicherry, India³Senior Resident, Department of General Surgery, Sri Venkateshwaraa Medical College Hospital and Research Centre, Pondicherry, India

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Conflict of interest: Nil

Abstract**Background:** Every year, a significant number of hospitalizations are brought on by peripheral vascular disease (PVD). PVD is the cause of 9.6% of "cardiovascular events" in the US, necessitating 63,000 hospitalizations annually.**Objectives:** The Objective of the study was to evaluate the change in pain-free walking distance (PFWD) in patients receiving aspirin versus pentoxifylline over 6 months. To compare changes in ankle-brachial index (ABI) between the two treatment groups.**Method:** This was a prospective comparative observational study was carried out in the Department of General Surgery, Sri Venkateshwaraa Medical College and Hospital, Ariyur, Puducherry, India from November 2024 to April 2025, study period was 6 months. A total of 100 elderly patients (>50 years) with symptomatic PVD were included. In this study we divide the sample cases into 2 groups; Group A- aspirin and Group B- pentoxifylline. We are comparing the pain free walking distance and ABPI among the two groups.**Results:** In our study among 100 patients effectiveness of aspirin and pentoxifylline in relieving intermittent claudication and improving functional walking capacity in elderly patients with peripheral vascular disease (PVD) 39 females, 61 males. In our study out of 100 patients, maximum number of cases between the age group >70 YRS of 35 male patients and 50-60 years of 19 female patients, both groups showed significant improvement in PFWD. Pentoxifylline group showed two fold PFWD improvement than Aspirin group (male group A 8% < group B 26%) and (female group A 12% < group B 22%).**Conclusion:** Pentoxifylline is more effective than aspirin in improving walking distance and relieving symptoms of claudication with fewer gastrointestinal side effects. Aspirin remains essential for cardiovascular risk reduction. Pentoxifylline may be considered a valuable adjunct for symptom management in elderly PVD patients.**Keywords:** Aspirin, Pentoxifylline, Peripheral Vascular Disease, Pain-Free Walking Distance.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Every year, a significant number of hospitalizations are brought on by peripheral vascular disease (PVD). PVD is the cause of 9.6% of "cardiovascular events" in the US, necessitating 63,000 hospitalizations annually. [1]

Furthermore, there is a substantial morbidity and mortality rate linked to PVD. For instance, compared to men without claudication, patients with intermittent claudication had a threefold increased risk of dying from cardiovascular causes during a five-year period, according to a study conducted in Finland. [2] An Israeli study that

showed that 44% of all men with intermittent claudication died within 21 years, compared to 29% without PVD, further demonstrates this high adverse outcome [3]. One prevalent and significant risk factor for all vascular diseases, including PVD, is hypertension. [4,5]

Intermittent claudication affects 2–5% of hypertension individuals at presentation, and the frequency rises with age. [6] Similarly, hypertension is present in 35–55% of patients with PVD at presentation [7–11]. In addition to these epidemiological correlations, hypertension plays a

role in the pathophysiology of atherosclerosis, the fundamental pathological mechanism that underlies PVD. [12–14] In fact, hypertension and PVD are linked to changes in the lipid profile and hemostasis. Even though it seems sense that treating hypertension should lower the incidence of PVD, this subject has not been sufficiently addressed as a primary outcome measure in any of the large placebo-controlled antihypertensive therapy trials.

Therefore, given that the two disorders are widespread and closely associated, there is a clear need for more knowledge on such outcomes.

The Aim of the study was to compare the effectiveness of aspirin and pentoxifylline in relieving intermittent claudication and improving functional walking capacity in elderly patients with peripheral vascular disease (PVD). The Objective of the study was to evaluate the change in pain-free walking distance (PFWD) in patients receiving aspirin versus pentoxifylline over 6 months. To compare changes in ankle-brachial index (ABI) between the two treatment groups.

Materials and Methods

This was a prospective comparative observational study was carried out in the Department of General Surgery, Sri Venkateshwara Medical College and Hospital, Ariyur, Puducherry, India from November 2024 to April 2025, study period was 6 months.

A total of 100 elderly patients (>50 years) with symptomatic PVD were included. In this study we divide the sample cases into 2 groups; Group A- aspirin and Group B- pentoxifylline.

We are comparing the pain free walking distance and ABPI among the two groups;

• Group A: Aspirin 75 mg/day

• Group B: Pentoxifylline 400 mg TID

Primary Outcome: Change in pain-free walking distance (PFWD).

Secondary Outcomes: Ankle-brachial index (ABI), symptom relief, adverse effects.

Inclusion Criteria: In this study we included Patient Age > 50 years of all sex with intermittent claudication.

Exclusion Criteria: Following patient's criteria we excluded from the study; Patients who had not the following symptoms and deceases; rest pain, ulcer, gangrene, orthopaedic complaints, varicose veins, lymphedema, neuropathy, spine pathology, heart diseases, stroke, mesenteric ischemia, renal artery stenosis.

Statistical Analysis: Statistical analysis was carried out using SPSS-24. P-value less than 0.005 was considered statistically significant. Statistical tests were applied based on the type of variable and normality of the data.

Results

Table 1: Gender distribution Group A (aspirin) and Group B (pentoxifylline)

Sex	Male	Female
Group A (Aspirin)	32	18
Group B (Pentoxifylline)	29	21

In our study among 100 patients effectiveness of aspirin and pentoxifylline in relieving intermittent claudication and improving functional walking capacity in elderly patients with peripheral vascular disease (PVD) 39 females, 61 males, Table 1.

Table 2: Age Group A (aspirin) and Group B (pentoxifylline)

Age	50-60 Yrs		60-70 Yrs		>70 Yrs	
Group A (Aspirin)	M	F	M	F	M	F
	5	9	9	6	18	3
Group B (Pentoxifylline)	M	F	M	F	M	F
	4	10	8	7	17	4

In our study out of 100 patients, maximum number of cases between the age group >70 YRS of 35 male patients and 50-60 years of 19 female patients, Table 2.

Table 3: Risk factors Group A (aspirin) and Group B (pentoxifylline)

Risk Factors	Diabetes		Hypertension		Hypercholesterolemia	
Group A (Aspirin)	M	F	M	F	M	F
	15	9	9	5	8	4
Group B (Pentoxifylline)	M	F	M	F	M	F
	14	10	8	6	7	5

In our study out of 100 patients, maximum number of cases 48 patients found in Diabetes, Table 3.

Table 4: Lower limb ischemia Group A (aspirin) and Group B (pentoxifylline)

	Unilateral lower limb ischemia		Bilateral lower limb ischemia	
Group A (Aspirin)	M	F	M	F
	21	11	11	7
Group B (Pentoxifylline)	M	F	M	F
	19	13	10	8

In our study out of 100 patients, maximum number of cases 40 male patients and 24 female found in unilateral lower limb ischemia, Table 4.

Table 5: Level of occlusion Group A (aspirin) and Group B (pentoxifylline)

Level Of Occlusion	Aorto-Iliac		Ilio-Femoral		Superficial Femoral	
Group A (Aspirin)	M	F	M	F	M	F
	11	5	8	5	13	8
Group B (Pentoxifylline)	M	F	M	F	M	F
	10	5	7	7	12	9

In our study out of 100 patients, maximum number of cases 25 male patients and 17 female found in superficial femoral, Table 5.

Table 6: Improvement in pain free walking distance Group A (aspirin) and Group B (pentoxifylline)

Improvement In Pain Free Walking Distance	1.5 Fold		2 Fold		>2 Fold	
GROUP A (aspirin)	M	F	M	F	M	F
	13	7	6	4	3	2
GROUP B (pentoxifylline)	M	F	M	F	M	F
	6	5	11	7	7	5

Both groups showed significant improvement in PFW. Pentoxifylline group showed two fold PFW improvement than Aspirin group (male group A 8% < group B 26%) and (female group A 12% < group B 22%), Table 6.

Table 7: ABPI ratio improvement Group A (aspirin) and Group B (pentoxifylline)

ABPI ratio improvement	0.2		0.3		0.4	
Group A (Aspirin)	M	F	M	F	M	F
	19	6	8	6	5	6
Group B (Pentoxifylline)	M	F	M	F	M	F
	3	1	12	11	14	9

ABI improvement > 0.2 increase, more in the group B compared to Group A (male group A 25% < group B 50%) and (female group A 26% < group B 46%), Table 7.

Table 8: GI side effects Group A (aspirin) and Group B (pentoxifylline)

GI Side Effects	Mild Dyspepsia		Nausea/Vomiting		Gastritis		Peptic Ulcer	
GROUP A (aspirin)	M	F	M	F	M	F	M	F
	15	7	7	5	7	4	3	2
GROUP B (pentoxifylline)	M	F	M	F	M	F	M	F
	7	3	4	2	3	2	1	0

Pentoxifylline was better tolerated with fewer gastrointestinal side effects than aspirin.

Gastritis (male Group A 10% > Group B 5%) and female (group A 12% > group B 6%). Nausea/vomiting – male (Group A 12% > Group B 8%) and female (group A 14% > group B 10%), Table 8.

Discussions

Lower limb PVD presents as a vasculogenic claudication and CLTI. Usually aspirin will be the mainstay of treatment in improving the claudication but with more GI side effects. But pentoxifylline is more beneficial in relieving the intermittent

claudication when compared to aspirin with fewer GI side effects.

Both groups showed significant improvement in PFW. Pentoxifylline group showed two fold PFW improvement than Aspirin group (male group A 8% < group B 26%) and (female group A 12% < group B 22%). ABI improvement > 0.2 increase, more in the group B compared to Group A (male group A 25% < group B 50%) and (female group A 26% < group B 46%). Pentoxifylline was better tolerated with fewer gastrointestinal side effects than aspirin Gastritis (male Group A 10% > Group B 5%) and female (group A 12% > group B 6%). Nausea/vomiting – male (Group A 12% >

Group B 8%) and female (group A 14% > group B 10%).

According to a small study, pentoxifylline, when compared to a placebo, has been demonstrated to reduce discomfort and enhance walking distance in patients who have had claudication symptoms for more than a year and whose ankle-to-arm blood pressure ratio is less than 0.8. [15-17].

To improve blood flow, aspirin is commonly used as an antiplatelet medication. However, in terms of enhancing claudication, it has never been contrasted with pentoxifylline. Even though our study's observation period was only six weeks, participants receiving pentoxifylline demonstrated an increase in walking distance.

However, aspirin did not increase the walking distance in any way. Neither aspirin nor pentoxifylline treatment reduced the severity of leg discomfort. Although pentoxifylline's precise mode of action is unknown, it most likely has something to do with its hematologic characteristics.

When pentoxifylline is taken with another exercise regimen, the effects could be compounding. [18] It has been demonstrated that an effective walking program can increase walking distance and reduce pain in people with moderate PVD. [19]

Conclusions

Pentoxifylline is more effective than aspirin in improving walking distance and relieving symptoms of claudication with fewer gastrointestinal side effects.

Aspirin remains essential for cardiovascular risk reduction. Pentoxifylline may be considered a valuable adjunct for symptom management in elderly PVD patients.

Ethical approval: The study was approved by the Institutional Ethics Committee.

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