CHAPTER 13

PERIPHERAL ARTERY DISEASE SURGERY

İrem İris KAN¹

INTRODUCTION

Peripheral artery disease (PAD) is a systemic and progressive disorder. Atherosclerosis is the leading cause of peripheral arterial occlusion. The other risk factors for PAD are hypertension, hyperlipidemia, diabetes, smoking, obesity, and family history (1). The incidence of PAD increases with age, and it is more common in men (2). Estrogen protects women against cardiovascular diseases until menopause (3) but during postmenopausal period, the prevalence of PAD in women is similar or higher than in men.

Patients with PAD are at significant risk for early cardiovascular events including myocardial infarction (MI), stroke, and death (4,5). Therefore, clinical evaluation and planning of modifiable risk factors are essential.

CLINICAL FEATURES

Intermittent claudication (IC) is a subjective condition in patients with PAD. It occurs during exercise and ends with rest. Before deciding on an operation, these patients have to make lifestyle changes, quit smoking, and take their medications. The goal should be to reduce cardiac morbidity as well as to save

¹ MD. Department of Cardiovascular Surgery; Uludağ University Faculty of Medicine, iriskan@uludag.edu.tr

REFERENCES

- 1. Chi Y-W, Jaff MR. Optimal risk factor modification and medical management of the patient with peripheral arterial disease. Catheter Cardiovasc Interv 2008;71:475-89.
- 2. Criqui MH, Aboyans V. Epidemiology of Peripheral Artery Disease. Circulation Research. 2015;116:1509-26.
- 3. El Khoudary SR. Gaps, limitations and new insights on endogenous estrogen and follicle-stimulating hormone as related to the risk of cardiovascular disease in women traversing the menopause: a narrative review. Maturitas 2017;104:44-53.
- 4. Veith FJ, Haimovici H. Femoropopliteal arteriosclerotic occlusive disease: Vascular Surgery. In: Haimovici H, editör. USA: Blackwell Science Inc;1996. p. 605-31.
- 5. Hirsch AT, Criqui MH, Treat-Jacobson D, Regensteiner JG, Creager MA, Olin JW, et al. Peripheral arterial disease detection, awareness and treatment in primary care. JSMA 2001;286:1317-24.
- Norgren L, Hiatt WR, Dormandy JA, Nehler MR, Harris KA, Fowkes FG. Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II.) J Vasc Surg 2007;45Suppl s: S5-67.
- 7. Conte MS, Bradbury AW, Kolh P, White JV, Dick F, Fitridge R, et al. Global vascular guidelines on the management of chronic limb-threatening ischemia. Eur J Vasc Endovasc Surg 2019;58:1-109.
- Fontaine R, Kim M, Kieny R. Surgical treatment of peripheral circulation disorders. Helv Chir Acta 1954; 21:499-533.
- 9. Cronenwett JL, Wayne JK, editör. Rutherford's Vascular Surgery. 7th ed. London: Saunders Elsevier; 2010. 1682-703.
- 10. Mills JL Sr, Conte MS, Armstrong DG, et al. The society for vascular surgery lower extremity threatened limb classification system: risk stratification based on Wound, Ischemia and foot Infection (WIfI). J Vasc Surg. 2014; 59(1):220-34.
- 11. McNally NM, Univers J. Acute Limb Ischemia. Surg Clin North Am. 2018;98:1081-96.
- 12. Björck M, Earnshaw JJ, Acosta S, Bastos Gonçalves F, Cochennec F, Debus ES, et al. Editor's choice- European Society for Vascular Surgery (ESVS) 2020 clinical practice guidelines on the management of acute limb ischemia. Eur J Vasc Endovasc Surg 2020;59:173-218.
- 13. Bozkurt AK, Tasci I, Tabak O, Gumus M, Kaplan Y. Peripheral artery disease assessed by ankle-brachial index in patients with established cardiovascular disease or at least one risk factor for atherothrombosis—CAREFUL study: a national, multi-center, cross-sectional observational study. BMC Cardiovasc Disord 2011;11:4.
- Belkin M, Conte MS, Donaldson MC, Mannick JA, Whittemore AD. Preferred strategies for secondary infrainguinal bypass:lessons learned from 300 consecutive reoperations. J Vasc Surg 1995;21:282-93. J Vasc Surg 1995;21:282-93.
- Flanigan DP, Williams LR, Schwartz JA, Schuler JJ, Gray B. Hemodynamic evaluation of the aortoiliac system based on pharmacologic vasodilation. Surgery 1983;93:709-14.

- 16. Schwartz JA, Flanigan DP, Williams LR, Schuler JJ, Gray B. Preoperative hemodynamic evaluation of aortoiliac occlusive disease: correlation with intraoperative measurements. Curr Surg 1983;40:278-81.
- Chiche L, Menant M. Traitements chirurgical et endovasculaire de l'AOMI. Realites cardiologiques 2012; 286. Available from: http://www.realities-cardiologiques.com/ wp-content/uploads/2012/05/06.
- 18. Jaff MR, White CJ, Hiatt WR, Fowkes GR, Dormandy J,Ravazi M, et al. An Update on Methods for Revascularization and Expansion of the TASC Lesion Classification to Include Below-the-Knee Arteries: A Supplement to the Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II): The TASC Steering Comittee(.): Ann Vasc. Dis 2015;8:343-57.
- 19. Post S, Kraus T, Müller-Reinartz U, Weiss C, Kortmann H, Quentmeier A, et al. Dacron vs. polytetrafluoroethylene grafts for femoropopliteal bypass: a prospective randomised multicentre trial. Eur J Vasc Endovasc Surg 2001;22:226-31.
- 20. Twine CP, McLain AD. Graft type for femoro-popliteal bypass surgery. Cochrane Database Syst Rev 2010;5:CD001487.
- 21. Eugene J, Goldstone J, Moore WS. Fifteen-year experience with subcutaneous bypass grafts for lower extremity ischemia. Ann Surg 1977; 186:177-183.
- 22. Ray LI, O'Connor JB, Davis CC, et al. Axillofemoral bypass: a critical reappraisal of its role in the management of aortoiliac disease. Surgert1979; 138:117-128.
- 23. Calligaro KD, Ascer E, Veith FJ, Gupta SK, Wengerter KR, Franco CD, et al. Unsuspected inflow disease in candidates for axillofemoral bypass operations: prospective study. J Vasc Surg 1990; 11:832-7.Preferred strategies for secondary infrainguinal bypass: lessons learned from 300 consecutive reoperations.
- 24. Schneider JR, McDaniel MD, Walsh DB, Zwolak RM, Cronenwett JL. Axillofemoral bypass: outcome and hemodynamic results in high-risk patients. J Vasc Surg 1992;15:952-62.
- 25. Mishall PL, Matakas JD, English K, Allyn K, Algava D, Howe RA, et al. Axillobifemoral bypass: a brief surgical and historical review. Einstein J Biol Med 2016;31:6-10.
- 26. Schneider JR, Besso SR, Walsh DB, Zwolak RM, Cronenwett JL. Femorofemoral versus aortofemoral bypass; outcome and hemodynamic results. J Vasc Surg 1994;19:43-55.
- 27. Mingoli A, Sapienza P, Feldhaus RJ, Di Marzo L, Burchi C, Cavallaro A. Femorofemoral bypass grafts: Factors influencing long-term patency rate and outcome. Surgery 2001;129:451-8.
- 28. Sautner T, Niederle B, Herbs F, Kretschmer G, Polterauer P, Rendl KH, et al. The value of obturator canal bypass. A review. Arc Surg 1994;129:718-22.28.
- 29. Nevelsteen A, Mees U, Deleersnijder J, Suy R. Obturator bypass: a sixteen year experience with 55 cases. Ann Vasc Surg 1987;1:558-63.