Cardiovascular Damage Induced by Anti-VEGF Therapy

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Abstract

Vascular endothelial growth factor (VEGF) plays an important role in maintaining the regular homeostasis of vascular walls. VEGF binds its receptor (VEGFR) promoting the regular survival and function of endothelial cells. Anti-VEGF and anti-VEGFR drugs inhibit the action of VEGF and VEGFR. These drugs can cause cardiovascular toxic effects such as arterial hypertension, thromboembolism, myocardial ischemia and heart failure. The monoclonal antibody bevacizumab and tyrosine kinase inhibitors (sorafenib, sunitinib, pazopanib, regorafenib, axitinib, cabozantinib, ponatinib) are the main inhibitors of VEGF, VEGFR and other tyrosine kinases. In this chapter we will illustrate the cardiovascular toxic effects of these drugs, their mechanism of action, strategy to early diagnose and treat these complications. We will also illustrate strategy to prevent cardiovascular toxicity. It is important to know cardiovascular toxic effect of these drugs widely used in oncological field, to avoid the development of severe future complications.

Keywords

VEGF VEGFR Cardiac toxicity Bevacizumab Thromboembolism Vessel Vascular toxicity