



Discussion on Severe Complications After Interventional Treatment of Cardiovascular Diseases

Xiaojie Shi

Department of Cardiovascular Medicine, Xiangcheng People's Hospital, Xuchang 461799, Henan, China.

How to cite this paper: Xiaojie Shi. (2024). Discussion on Severe Complications After Interventional Treatment of Cardiovascular Diseases. *Cardiovascular Research and Therapy*, 1(1), 5-8.
DOI: 10.26855/crt.2024.12.002

Received: November 9, 2024

Accepted: November 30, 2024

Published: December 21, 2024

***Corresponding author:** Xiaojie Shi, Department of Cardiovascular Medicine, Xiangcheng People's Hospital, Xuchang 461799, Henan, China.

Abstract

Objective: To investigate the serious complications after interventional therapy of clinical cardiovascular disease. **Methods:** 400 patients with cardiovascular disease who received interventional therapy in our hospital from March 2020 to May 2022 were selected, among which 30 patients had serious complications after receiving interventional therapy. This study and 30 patients with complications were taken as research objects, and the specific status of treatment and complications of all patients were statistically studied. **Results:** The statistical analysis showed that the complication rate was 9.32% in the elective cardiac group, 7.92% in the emergency cardiac group, and 6.52% in the vascular group. The incidence of serious complications in the elective group was significantly higher than that in the other groups ($P < 0.05$). The clinical manifestations of serious complications after interventional therapy of cardiovascular diseases were severe arrhythmia, hematoma at puncture point, anaphylactic shock at contrast dose, etc. The incidence of these three clinical symptoms were 23.33%, 16.67%, 16.67%, respectively, and compared with other clinical symptoms, the difference was significant ($P < 0.05$). **Conclusion:** Puncture point hematoma, arrhythmia and contrast anaphylactic shock are common complications after interventional therapy of clinical cardiovascular diseases. Attention should be paid to the interventional therapy and effective countermeasures should be taken to effectively control the incidence of complications and mortality.

Keywords

Cardiovascular disease; Interventional therapy; Severe complications

With the change of people's lifestyle in recent years, the incidence of clinical cardiovascular diseases has also shown a rising trend. At present, there are many methods for treating cardiovascular diseases in the medical field. With the continuous improvement of medical technology, interventional treatment has gradually begun to be applied to the field of medical diagnosis and treatment [1]. Interventional treatment is mainly a diagnosis and treatment method between internal and external medicine, which mainly includes intravascular intervention and non-intravascular intervention. At present, interventional treatment is a relatively effective treatment method in the clinical treatment of cardiovascular diseases. However, this treatment method will also cause complications during the application process. For example, in severe cases, complications will pose a serious threat to the patient's life safety. Therefore, how to effectively control severe complications while ensuring the efficacy of interventional treatment has become the focus of current medical clinical research [2]. Detailed analysis of previous cardiovascular disease treatment cases to find out the related factors of severe complications will help to take effective preventive measures in subsequent treatment.

This study focuses on the relevant issues of severe complications after interventional treatment in the treatment of clinical cardiovascular diseases, and the following report is made.

1. Materials and methods

1.1 General information

A total of 400 patients with cardiovascular disease who underwent interventional treatment in our hospital from March 2020 to May 2022 were selected. All patients were aged between 43 and 85 years old, with an average age of (61.76±2.98) years old. The male-female ratio of patients was 254:146, including 161 patients in the elective cardiac group, 101 patients in the emergency cardiac group, and 138 patients in the peripheral vascular group. Among them, 30 patients developed severe complications after receiving interventional treatment. The patients were aged between 50 and 82 years old, with an average age of (60.35±3.25) years old. The male-female ratio of patients was 17:13. The specific conditions of treatment and complications of all patients were statistically studied. This study was approved by the hospital ethics committee.

1.2 Methods

During interventional treatment, the patient is given local anesthesia, and the skin is thoroughly disinfected. A micro-incision is performed, and the patient's left subclavian vein, radial artery, and femoral vein are used to enter the lesion for treatment. During interventional treatment, the patient must first be given an intravenous injection of 0.5-1.0 mg/kg of heparin, and angiography and CT are used to find the patient's femoral artery pseudoaneurysm, vascular rupture and bleeding, and perinephric hematoma. Based on autopsy experience, the rupture of the thoracic artery dissecting aneurysm can be clearly located, and the electrocardiogram can be used to determine whether the patient has arrhythmia. Through surgery, it can be known that acute pericardial tamponade is mainly caused by cardiac perforation.

1.3 Statistical methods

SPSS 22.0 was used to analyze the data. The measurement data were expressed as ($\bar{x} \pm s$) and *t*-test, and the counting data were expressed as n (%) and χ^2 test. *P* < 0.05 indicated statistically significant differences.

2. Results

2.1 Comparison of severe complications among the three groups of patients after interventional treatment

Among the cases selected for this study, 30 patients had serious complications. In the elective cardiac group, 15 patients had serious complications. The overall incidence rate of serious complications was 9.32%. In the cardiac emergency group, 8 cases had serious complications. Overall, the incidence rate was 7.92%; 9 cases of serious complications occurred in the peripheral vascular group, and the overall incidence rate was 6.52%; compared with the other two groups, the incidence rate of serious complications after interventional treatment was significantly higher in the cardiac elective group, and the difference was significant; *P* < 0.05. See Table 1.

Table 1. Comparison of complication rates among three groups of patients [n (%)]

Group	n	Number of serious complications	Incidence
Cardiac elective group	161	15	9.32
Cardiac emergency team	101	8	7.92
Peripheral vascular group	138	9	6.52

2.2 Distribution of serious complications

According to this study, it can be found that among the 30 cases of severe complications, 7 patients had severe arrhythmia, with an overall incidence rate of 23.33%; 5 patients had large hematoma at the puncture site, with an overall incidence rate of 16.67%. Five patients suffered from contrast agent allergic shock, accounting for 16.67% of

the total. Compared with other complications, the above three complications have significant differences, $P < 0.05$. See Table 2.

Table 2. Specific manifestations and distribution of patients with epilepsy [n (%)]

Group	n	Incidence
Severe arrhythmia	7	23.33
Large hematoma at puncture site	5	16.67
Contrast dose allergic shock	5	16.67
Cerebral infarction	3	10
Cardiac perforation to acute pericardial obstruction	3	10
Peri-shoulder hematoma	3	10
Femoral artery pseudo-occlusion	3	10
Coronary artery no blood flow phenomenon	1	3.33
Total	30	100

3. Discussion

Cardiovascular diseases usually progress very quickly and are often serious. For such patients, effective treatment should be carried out in a timely manner at the early stage of the disease [3]. Interventional therapy is a new treatment method that has emerged in recent years. It has some advantages such as less trauma, convenient operation, and intuitive observation of lesions, and has been widely used in the treatment of cardiovascular diseases [4]. In addition, only local anesthesia is required during interventional therapy. Small doses of anesthetic drugs will not cause significant adverse effects on patients, and the risk of anesthesia is relatively low. Therefore, relevant research on interventional therapy is also increasing. In particular, in the clinical treatment of elderly patients, due to the influence of factors such as physical constitution, the tolerance of elderly patients is poor. The emergence of interventional therapy has brought more options for the clinical treatment of cardiovascular patients in the coming year [5].

Through the application of digital technology, cardiovascular interventional treatment has gradually developed into a minimally invasive technology. In this process, only a few millimeters of tiny channels are needed on the patient's skin and blood vessels to observe and treat tiny lesions using vascular contrast agents or dialysis machines. The entire treatment process does not require cutting human tissue. It can play a good therapeutic effect in the treatment of coronary artery stenosis, acute myocardial infarction and other diseases. It has the advantages of small incisions and few bleeding points. In clinical treatment, it is more convenient to operate and the location of lesions can be clearly observed. In addition, in the interventional treatment method, only local anesthesia is needed for the patient, which can effectively control the surgical risks caused by general anesthesia and appropriately relax the relevant indications. In this case, many elderly patients have more treatment opportunities and are widely recognized in clinical applications. Although the application of interventional treatment in the treatment of cardiovascular diseases has shown many advantages, from the perspective of clinical practice, interventional treatment will inevitably bring more complications, and even many patients will have serious complications or even death [6]. In view of this, it is necessary to strengthen the research on complications after interventional treatment of clinical cardiovascular diseases, and deeply analyze the related influencing factors of serious complications after interventional treatment, so that targeted preventive measures can be put forward to further improve the safety of interventional treatment. According to this study, 30 patients in the selected cases had serious complications, 15 patients in the cardiac elective group had serious complications, and the overall incidence of serious complications was 9.32%, 8 patients in the cardiac emergency group had serious complications, and the overall incidence was 7.92%; 9 patients in the peripheral vascular group had serious complications, and the overall incidence was 6.52%; compared with the other two groups, the incidence of serious complications after interventional treatment in the cardiac elective group was significantly higher, and the difference was significant; $P < 0.05$. The probability of serious arrhythmia, large hematoma at the puncture point, and contrast agent allergic shock after interventional treatment is relatively high, which is completely consistent with the current medical research on serious complications of interventional treatment of cardiovascular diseases. In

addition, during the interventional treatment process, it is necessary to further strengthen perioperative nursing intervention, strictly implement various preoperative preventive measures, actively communicate with patients and provide psychological counseling to avoid complications caused by excessive tension in patients; during the operation, nursing staff should pay close attention to changes in the patient's complexion and consciousness, and promptly ask the patient whether he has symptoms such as dizziness and chest tightness. Once any abnormalities are found in the electrocardiogram, the doctor should be contacted in time for symptomatic treatment.

In summary, the application of interventional therapy in the treatment of cardiovascular diseases will produce various types of serious complications, among which severe arrhythmias, large hematomas at the puncture site, and contrast agent allergic shock are the main complications. In clinical treatment, effective measures should be taken to actively prevent various complications and effectively improve the technical level of interventional treatment methods. Only in this way can the patient's clinical mortality rate and complication rate be effectively controlled, and the safety of interventional therapy can be further improved.

References

- [1] Han Weiyu, Chen Yuanxing, Huang Youyang, Liu Weiwei, Zhao Yongchao, Zhao Ranzun. Histone deacetylation modulates the occurrence and development of cardiovascular diseases[J/OL]. *Chinese Journal of Tissue Engineering Research*.
- [2] Lei Ziqin, Luan Fei, Gao Ming, Hu Jingwen, Zeng Nan. Research progress on the relationship between cell pyroptosis and cardiovascular disease and prevention and treatment of traditional Chinese medicine [J/OL]. *Chinese Journal of Traditional Chinese Medicine*: 1-15 [2023-02-08].
- [3] Yang Ying, Zhang Zhiguo, Chen Yanjing. Clinical application and mechanism of Huangqi Guizhi Wuwu Decoction in cardiovascular diseases[J/OL]. *Chinese Journal of Basic Medicine of Traditional Chinese Medicine*: 1-9 [2023-02-08].
- [4] Cai Ming, Wang Liyan, Yang Ruoyu, Liang Leichao, Yang Yuanyuan, Jia Shihao, Chen Ruiyi, Ren Yu, Liu Qianle, Hu Jingyun. A randomized controlled trial of short-term high-intensity interval training to reduce the accumulation of advanced glycation end products and cardiovascular disease risk in female college students with latent obesity[J/OL]. *Chinese General Practice*.
- [5] Liao Xiaobo, Xiao Peng. Analysis of risk prediction model for depression in elderly patients with cardiovascular disease[J]. *Public Health and Preventive Medicine*, 2022, 33(06): 144-147.
- [6] Yu Rui, Wang Xinlu, Wang Jianru, Zhao Qifei, Peng Guangcao, Li Bin, Li Xingyuan, Zhu Mingjun. Construction and thinking of the prevention and control model of cardiovascular disease combining traditional Chinese and western medicine[J]. *Modern Distance Education of Traditional Chinese Medicine*, 2022, 20(21): 196-199.