

LETTER TO THE EDITOR

The neglected fact: Metal allergy of vascular stents in emergency department

To the Editor:

With the development of vascular and endovascular surgery, the treatment of vascular diseases has undergone tremendous changes. From open surgery to the application of various stents, patients have significantly less surgical trauma and postoperative complications. However, vascular stents are mainly made of various metal materials, which inevitably carries the risk of metal allergies and is also very easy to overlook in the emergency department. Among the vascular stent materials commonly used in vascular surgery, the main metal allergy hazardous substances are nickel, gold, chromium, and cobalt, of which nickel allergy is the most common. The incidence of nickel allergy in adults ranges from 8% to 19% in the general European population and in children and adolescents (mainly women) from 8% to 10%.¹ Gold allergy is also common, occurring in 9.5% in North America and also predominating in women.² Chromium and cobalt allergy are relatively rare, occurring in 6.2% and 2.3%, respectively.³ The mechanism of metal allergy is mainly type IV hypersensitivity reaction.⁴ The patch test is the criterion standard for diagnosing contact allergies caused by type IV hypersensitivity reactions, including metal allergy.⁵ The relationship between metal allergy in surgical implants and postoperative adverse effects in surgical patients is not well understood. Metal allergy may be associated with stent stenosis after coronary artery surgery.⁶ In addition to effects on local stents, metal allergy to stents has been found to cause local edema or extensive skin allergic reactions.⁴⁻⁶

In addition to stent stenosis, stent metal allergy can induce local or anaphylaxis. The most common type of skin allergic reaction associated with metal implants is eczema, but urticaria and vasculitis are occasionally seen. Local manifestations are usually dermatitis, mainly involving the skin near the implant site, and systemic manifestations are usually eczema-like.³⁻⁵ Systemic adverse effects associated with vascular stents have been reported sparsely, mainly in case reports. For possible metal allergy in stents, most literature does not support routine screening for patch testing in all patients awaiting surgery, only evaluation in patients with strong suspicion of metal allergy. At the same time, patch testing prior to stent implantation has been shown to be highly accurate in predicting postoperative metal allergy in patients at high risk of allergy.⁴ Therefore, preoperative patch testing can be evaluated in patients with a history of previous

or suspected metal allergy. However, given the risks and harms of aneurysm rupture or vascular occlusion, it is worth taking the risk of metal allergy if necessary.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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