Abstract:

Materials used in osteosynthesis or artificial joint replacement are usually well tolerated. Complaints after such operations are mostly related to infection or mechanical problems but may also be caused by allergic reactions. The latter encompass skin changes, e.g., eczema, delayed wound/bone healing, recurrent effusion, pain, or implant loosening. In contrast to the high incidence of cutaneous metal contact allergy, allergies associated with implants are a rare condition. However, epidemiological data on the incidence of implant-related allergic reactions are still missing. Typical elicitors are nickel, chromium, cobalt, and constituents of bone cement (acrylates and additives such as gentamicin or benzoyl peroxide). After exclusion of the most common differential diagnoses, allergy diagnostic procedures are primarily based on patch tests including a metal and bone cement component series. Additional analysis of periimplant tissue is recommended. However, further studies are necessary to show the significance of the histologic findings and the role of the lymphocyte
transformation test (LTT). Which combinations of factors will induce allergic sensitization to implants
or trigger periimplant allergic reactions in the case of preexisting cutaneous metal allergy is still
unknown. Titanium-based osteosynthesis materials are recommended for metal allergic patients. In
elective hip replacements, a ceramic/polyethylene (PE) articulation should be used, and in knee
replacements "alternative materials". If a regular, potentially applicable CoCr/PE articulation is
preferred, the patient must be well informed and must give his/her written consent.