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## **Implantable venous port systems - prevention of infectious complications in children with bone tumors after the arthroplasty.**

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**Background:** The treatment of bone tumors in children requires numerous courses of chemotherapy. An initial problem to be solved is providing venous access: comfortable for the patient and entailing minimal risk of infections. This is particularly important to prevent infection of bone implants in the joints. The best option is fully implantable venous port systems.

**Materials and Methods:** From 2008 to 2012 we observed 175 children with bone tumors of extremities (aged 3 years to 17 years). Limb arthroplasty was performed in 167 patients (95.4%): in 2008 - 24 patients, 2009 - 34, 2010 - 28, 2011 - 44, 2012 - 37. The lowest age of the patient, who underwent surgery for knee replacement - 3.5 years, the shoulder joint - 4 years. We have used venous ports since 2010 and implanted them in 80 (45.2%) patients with limb bone sarcomas: in 2010 - 5 (17.8%) patients, 2011 - 39 (88.6%), 2012 - 36 (97.2%). Subclavian catheters were implanted in 96 (54.8%) patients.

**Results:** Infectious complications developed in 18 patients with limb endoprosthesis (10.8%). There were 3 infected implants (12.5%) in 2008, 5 (14.7%) - in 2009, 3 (10.7%) - in 2010, 4 (9.0%) - in 2011, 3 (8.1%) - in 2012. Two-step re-arthroplasty was performed in 11 (61.1%) patients, conservative treatment (antibiotic therapy with Maxipime, Amikacin, Zyvox or Cubicin) helped to keep the implants in 7 patients (38.8%). In this early - developed within 3 months after the operation - infectious complications occurred in 64.3% of patients, delayed - from 3 months up to 2 years - 24.1%, and late - over two years - in 11.6%. Catheter-related bloodstream infection developed in 28 (29.1%) patients with subclavian catheters, while in patients with implantable venous ports such infections were not noted. The most common cause of catheter-related infections - *S. epidermidis* (71,8%) and *S. aureus* (18,2%), also inoculated when infected implants.

**Conclusion:** The introduction of implantable venous port-systems for the treatment of child patients with bone tumors has significantly reduced the number of infectious complications and infections of limb prostheses (1.8 times).

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