**VIRUS INACTIVATION IN ALLOGENEIC AVITAL BONE TISSUE TRANSPLANTS BY PERACETIC ACID-ETHANOL, GAMMA IRRADIATION AND MOIST HEAT**

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Different procedures for the inactivation of viruses are used at present in the framework of bone tissue transplants. The common methods used in Germany are gamma-irradiation (25 kGy), thermal treatment with moist heat (TT, 82.5°C/15 min.) as well as chemical sterilisation, e. g. peracetic acid-ethanol treatment (PES, 2% peracetic acid, 96 % ethanol, Aqua [2:1:1], 200 mbar, agitation, 4 hours).

Based on national and international guidelines the antivirucidal effectiveness of these methods in human bone transplants were tested. Three enveloped viruses: human immunodeficiency virus type 2 (HIV-2), pseudorabies virus (PRV), bovine virus diarrhoea virus (BVDV) and three non-enveloped viruses: hepatitis A virus (HAV), poliovirus (PV-1), porcine/bovine parvovirus (PPV, BPV) were used. Defatted spongiosa cubes served as model in chemical treatment. For gamma irradiation cortical diaphyses were used. The effects of TT were tested in prepared femoral heads. The log₁₀-reduction was measured by cytopathogenic effects after virus titration (TCID₅₀/mL).

At least 33.9 kGy (bone model) at -30 ± 5°C was necessary to got a sufficient reduction (4 log₁₀ steps) of BPV, the most resistant of all used viruses. TT leads as well as PES to a reduction of the virus titers by more than 4 log₁₀. Only HAV showed a reduction below 4 log₁₀ (2.87) with PES. After validation of the included defatting step with HAV-infected cells, it was found a HAV-reduction of over 7 log₁₀.

All of the three tested methods will be recommend for bone transplant sterilization/disinfection, but only, if other safety steps (anamnestic informations, infectious serology, HIV-/HBV-/HCV-PCR in case of multiorgan donors) are taken.