Clinical studies of cryotherapy for lumbar facet joint syndrome (LFJS) have reported promising outcomes. However, few studies have focused on the technical aspects of cryoneurolysis for LFJS. The aim of a study was to determine the size and shape of cryolesions in vitro and to determine how they are affected by the duration of freezing, size of the cryoprobe and distance and angulation to an osseous boundary layer.

Two different cryolesion generators were used. Cryolesions were generated in tempered physiologic NaCl solution in the vicinity of an osseous surface. The size of the cryoprobes, duration of freezing, distance to the bone surface and angulation of the probe were studied. Cryolesions were recorded with a video camera during their emergence. Images at distinct time points were analysed using digital image processing software.

The probe size, the system in use and the duration of the freezing cycle were the main determinants for the size of the cryolesion. The vicinity of the osseous boundary resulted in a modest increase in the size of the cryolesion. Angulation of the cryoprobe towards the osseous boundary is of minor importance for the size of the contact area to the nerve.

For cryoneurolysis of LFJS, duration of freezing, temperature and probe size are the main determinants of lesion size and thus the probability of success of the procedure. A tangential approach of the probe is not essential [1)].

1)
Wolter T, Bozhkov Y, Knoeller SM. An in vitro analysis of the size and shape of cryolesions for facet joint denervation. Clin Neurol Neurosurg. 2017 Jan 4;153:87-92. doi: 10.1016/j.clineuro.2017.01.001. [Epub ahead of print] PubMed PMID: 28076822.