Reviewer's report

Title: The use of a new miniature cryoprobe for ablation of bone tissue: In vivo assessment of the probe and application of the method to bone in a sheep model

Authors:

Dr Frank F Popken (fpopkenm@aol.com)
Marc M Land (Land167@aol.com)
Heike H Eberich (ha.erberich@uni-koeln.de)
Marfalda M Bosse (m.bosse@uni-koeln.de)
Dietmar-Pierre D P Konig (Dietmar-Pierre.Koenig@medizin.uni-koeln.de)
Peer P Eysel (peer.eysel@uni-koeln.de)

Version: 1 Date: 31 Dec 2002

Reviewer: Dr John Baust

Level of interest: not specified

Advice on publication: Other (see below)

Interest in the application of cryosurgical techniques has grown very significantly over the past decade especially in the surgical arena of invasive cancers. This advance has been due in part to the development of cryosurgical probes with greater cooling capacities and the simultaneous use of intraoperative ultrasound. Cryosurgical treatment of bone-based tumors has been used sparingly for over thirty years despite apparent success. This "sparing" application has been related to the poor freezing capacity of older cryoprobe designs as mentioned by the authors. Due to reduced freezing capacity, surgeons typically excavated the diseased bone and applied "cryo" at the margins of the tumors leaving a weakened structure.

To improve the practice of bone cryosurgery, a detailed knowledge of the likely efficacy of the newer generation of cryosurgical devices is required. In the manuscript, the authors detail just such a study comparing probe performance both in vitro and in vivo. The studied compare single and double cryoprobe configurations demonstrating that appropriate ablative temperatures could be attained with the device at hand. In particular, the gelatin models reached colder temperatures at equivalent distances from the probes when compared to freezing in a sheep tibia.

The manuscript is clearly written, the conclusions are supported by the data, the experiment can be easily repeated and the technical presentation is appropriate.

Level of Interest

A paper whose findings are important to those with closely related research interests.

Accept without revision - except for a few minor corrections as noted below:

Corrections -

Page 6. paragraph 2. line 1 "... there was no difference in freezing when a single probe ..."
Page 6. paragraph 3. line 2-3. delete "which has body temperature"
Page 10. reference 21 and 22. remove semi-colons after last cited author’s names.
Figures 5 and 7. add distance to "Sensor A, B and C" so as to be consistent with other figures.

**Competing interests:**

None declared.