

News release

PetXmark™ allows for high single-dose radiation of soft tissue sarcomas in dogs as a better alternative to conventional radiotherapy

- **Using PetXmark™ to guide high single-dose radiation therapy (RT) is feasible and safe**
- **High single-dose RT minimizes costs and the need for anesthesia compared to conventional fractionated RT**

Copenhagen, September 29, 2023 – Nanovi A/S (Nanovi) informs about the results of a clinical study of PetXmark®, conducted by NorthStar VETS (N.J, US), Petcure Oncology (IL, US) and Western College of Veterinary Medicine (CA, US). PetXmark® is a liquid fiducial marker, developed by Nanovi to radiographically mark soft tissue in dogs and cats for target visibility on imaging.

Background and study design

The first objective of this prospective study was to evaluate the outcomes and effects of a single high dose of radiation on dogs following narrow or incomplete excision of grade II and III soft tissue sarcomas. The second objective was to evaluate PetXmark™ for defining a stereotactic radiation treatment location, in the absence of gross disease. 36 dogs with a histologic diagnosis of soft tissue sarcomas underwent liquid fiducial guided single 20-Gy fraction of stereotactic radiation therapy following surgical excision. 10 µL of PetXmark™ was injected at 1-cm increments to a maximum depth of 0.5 cm along the scar, including an additional 1 cm at each end. The fiducial markers were contoured and an interpolation algorithm was applied to create a roughly tubular structure. This was defined as the clinical tumor volume, and a 0.5 to 1 cm expansion was applied to define the planning target volume (PTV).

Results

All dogs underwent radiation therapy for a mean of 36.1 days (range of 20 to 59 days) after surgery. Acute and delayed radiation toxicity effects were observed in 80.5% and 36.1% of dogs, respectively, all of which affected the skin. Tumor recurrence was noted in 24.3% of dogs with a median time to recurrence of 272 days (range, 14 to 843 days). The restricted mean overall survival time (OST) was 1,556 days (range, 1,383 to 1,728 days) and restricted mean disease-free interval (DFI) was 1,330 days (range, 1,101 to 1,559 days).

Discussion

The use of PetXmark™ in the dogs in this study allowed treatment of the affected area with a single high dose of radiation leading to good local tumor control and few complications. This is an important finding as it offers an alternative to conventionally fractionated radiation therapy. Furthermore, single dose radiation limits the need for general anesthesia to two episodes. This is an important consideration given



that most patients undergoing radiation therapy are older and may have comorbidities that would otherwise increase the risk associated with multiple anesthetic episodes.

Conclusion

This study shows that a single 20-Gy fraction of radiation, guided by PetXmark™, to treat marginally or incompletely resected soft tissue sarcomas resulted in similar OST and DFI compared to other previously reported radiation protocols. This course of treatment minimizes owner cost and the need for a patient to undergo multiple anesthetic episodes while achieving good local tumor control.

References

Ericksen T, Mauldin N, Dickinson R, Mauldin G. Single high-dose radiation therapy and liquid fiducial markers can be used in dogs with incompletely resected soft tissue sarcomas. J Am Vet Med Assoc. 2023 Jul 12;1-8. doi: 10.2460/javma.23.02.0119. Epub ahead of print. PMID: 37437890



Nanovi contact:

Jesper Boysen, CEO
Phone: +45 24 65 60 33
E-mail: jb@nanovi.com

About PetXmark™

PetXmark™ is a liquid fiducial marker, developed by Nanovi A/S to radiographically mark soft tissue for target visibility on imaging and enable high precision radiation therapy for better treatment of multiple cancer types.

PetXmark™ has the following features and benefits:

- *Liquid nature* for customizable implantation
- *Sticky and tissue-adaptive* with positional stability and visibility on relevant imaging modalities, including MRI.
- *Non-metallic composition* for a low level of artifacts and low dose perturbation offering compatibility with photon and proton radiation therapies.

For more information, please visit: www.nanovi.com