

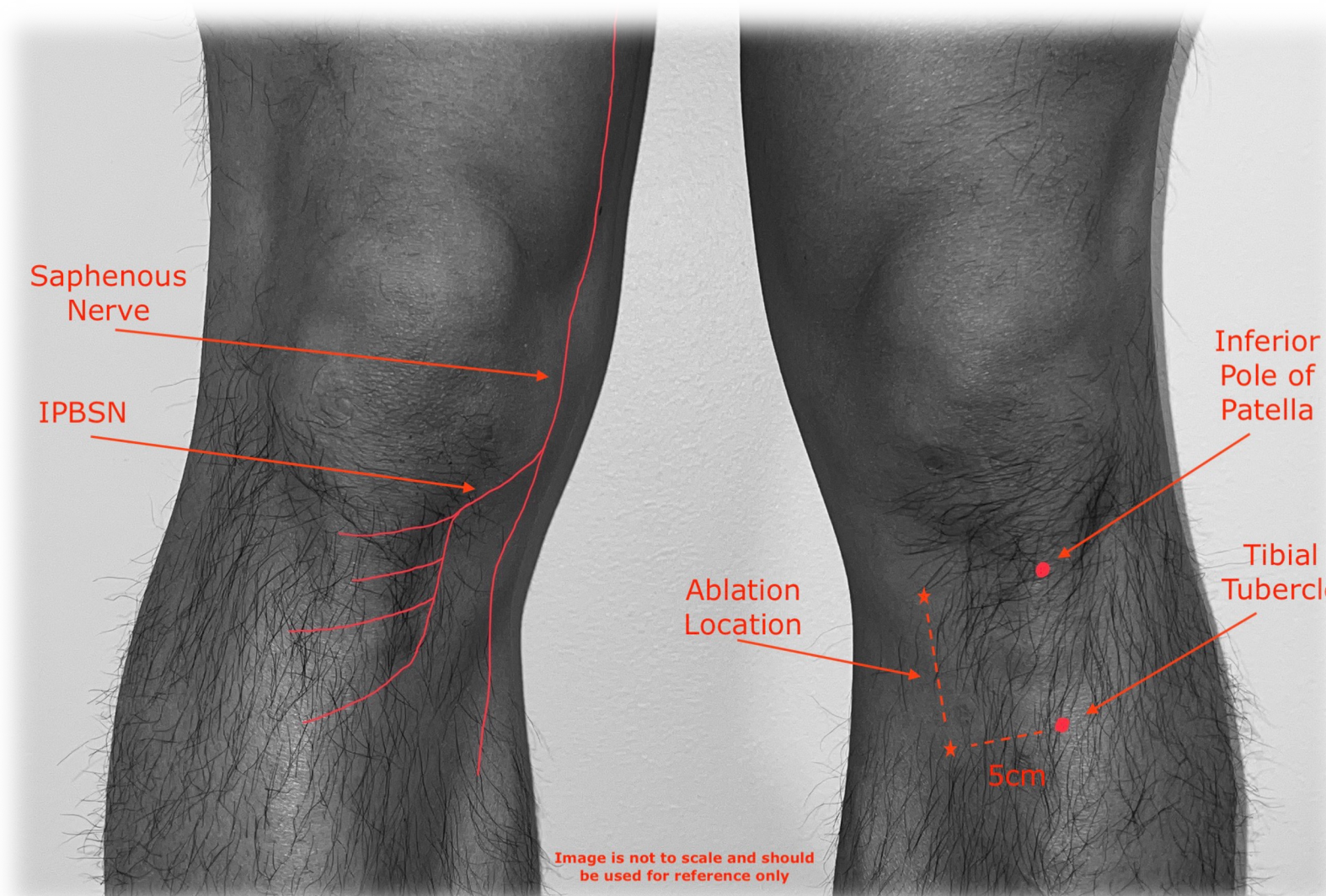
Introduction

Ablation of the infrapatellar branch of the saphenous nerve has been shown to provide pain relief for some patient population. A relatively new device and procedure technique was released allowing for cryoablation of the IPBSN using surface anatomy. This procedure can be completed in clinic without the use of fluoroscopy or other advanced imaging techniques. This procedure has also been utilized on patients with refractory pain after TKA. It is unclear if TKA surgery effects the efficacy of pain relief and/or duration of pain relief. Our study aimed at analyzing differences between patients who underwent IPBSN cryoablation before and after TKA.

- **Is there a difference in pain relief with cryoablation of the IPBSN before and after TKA?**
- **Is there a difference in duration of efficacy of cryoablation of the IPBSN before and after TKA?**
- **Are there different demographics or medical history that effects the efficacy of IPBSN cryoablation?**

Procedure Overview

The procedure in this study utilized surface anatomy to determine the location of the IPBSN. The inferior pole of the patella and the tibial tubercle are first marked. A vertical line, 5cm medially, is drawn between the two marked locations. Local anesthetic is used along the course of the vertically drawn line. The tip of the cryoablation device is inserted to the maximum depth of 8.5mm along the vertically drawn line. The entirety of the line is then ablated. Overlying sections of ablation was completed to ensure denervation of the IPBSN.



A Retrospective Study Evaluating Nerve Ablation to the Infrapatellar Branch of the Saphenous Nerve (IPBSN) Before and After TKA

Daniel Mok DO, McCasey Smith MD, Logan Leavitt DO, Kerry Mian MD, Sharon Zhang MD, Jason Do DO, Ann Wingard DO, M Scott Draper DO

The University of Kansas Medical Center

SUNY Downstate Health Sciences Center

Discussion

Our study aimed to evaluate the effectiveness of IPBSN ablation of patients before and after TKA. We found that more than 50% of patients in both cohorts received >40% (p<0.05) in pain reduction after IPBSN ablation. Furthermore, this study found no statistically significant difference in pain reduction between the two cohorts. Although the duration of efficacy was greater than three months for more than 50% of the patients, it was less in comparison to other published literature and with no statistical significance. The limited effects of other independent variables analyzed on primary outcomes is interesting. The limited impact of BMI prompts further questions as it was hypothesized that this could potentially cause greater variations because of the larger volumes of space which the nerve may traverse. While limb girth was not directly measured in this project, the assumption of patients having larger limb sizes by proxy of having a higher BMI should have shown some correlation.

- **Decreased duration of efficacy in comparison to other published data may be a result of study set up and limited follow up as discussed in limitations.**
- **Future studies may investigate limb girth effects on IPBSN ablation.**

Takeaways From Study

- **Cryoablation of the IPBSN before and after TKA can be completed with reassurance that patient will obtain similar results in pain reduction.**
- **TKA surgery has no statistically significant effects on duration of efficacy for cryoablation of the IPBSN.**

Results and Statistics for Patients With IPBSN Prior to					
Average Age	Average BMI	Number of Patients With a Psychiatric Use History	Number of Patients With a Tobacco Use History	Number of Patients With Opioid Use History	Number of Patients With Diabetes
72.0	30.7	21.0	23.0	22.0	10
Age Standard Deviation	Standard Deviation	Number of Patients Without a Psychiatric Use History	Number of Patients Without a Tobacco Use History	Number of Patients Without Opioid Use History	Number of Patients Without Diabetes
8.5	7.6	25.0	23.0	23.0	35.0
Results and Statistics for Patients With TKA Prior to					
Average Age	Average BMI	Number of Patients With a Psychiatric Use History	Number of Patients With a Tobacco Use History	Number of Patients With Opioid Use History	Number of Patients With Diabetes
70.2	32.5	14.0	20.0	17.0	13.0
Age Standard Deviation	Standard Deviation	Number of Patients Without a Psychiatric Use History	Number of Patients Without a Tobacco Use History	Number of Patients Without Opioid Use History	Number of Patients Without Diabetes
10.3	5.6	27.0	21.0	23.0	27.0

Material and Methods

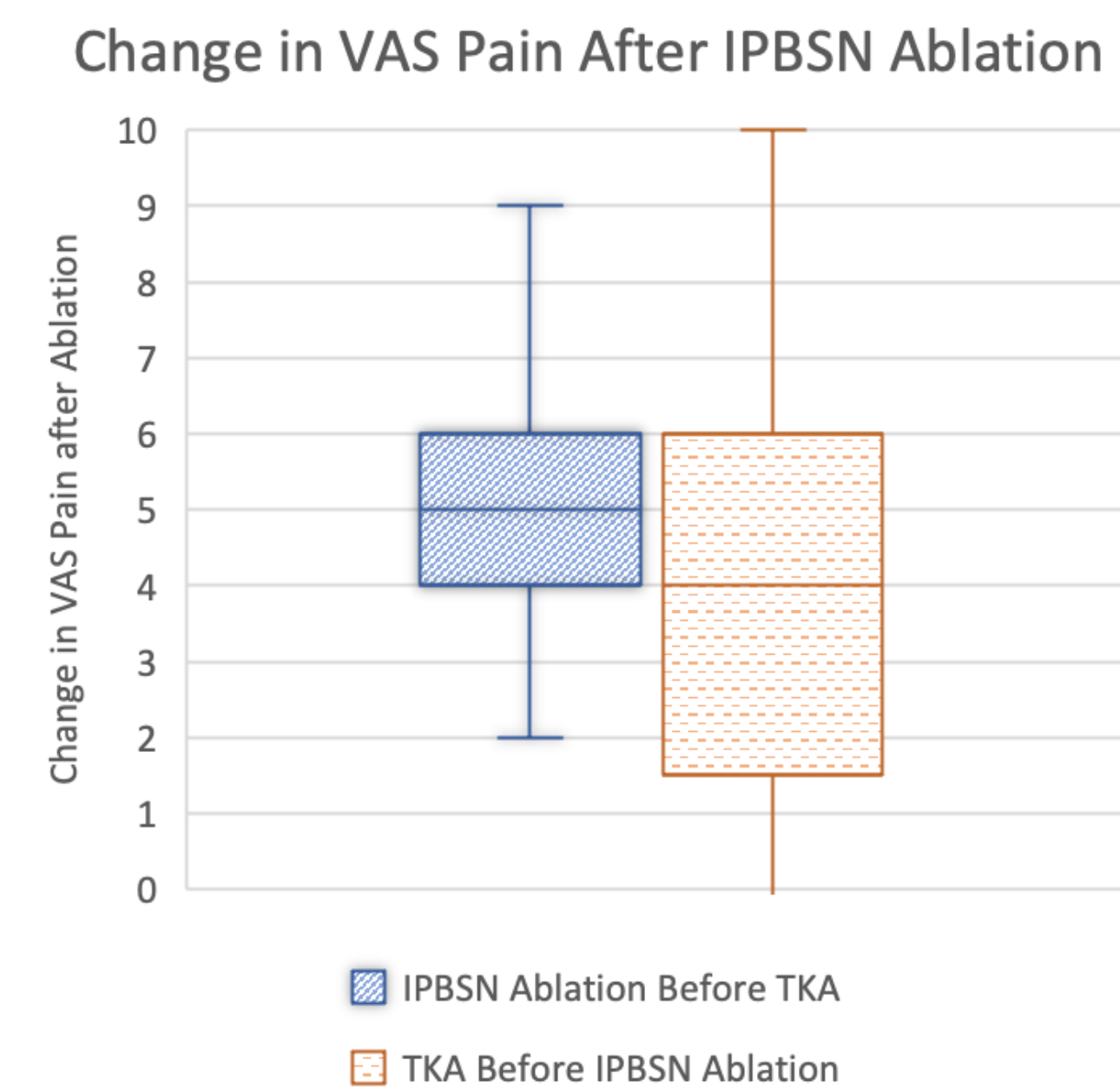
The University of Kansas Medical Center granted IRB approval for this research project under "STUDY00149587". A retrospective chart review of patients who underwent IPBSN ablation before and after TKA was completed. Demographic and some medical history was collected for each patient. Primary outcome measurements included differences in pain severity, according to a visual analogue scale (VAS), and duration of pain relief measured in months.

- **This is a retrospective chart review with primary outcomes measurements including change in VAS pain scales and duration of efficacy measured in months.**
- **This study includes two cohorts of patients: IPBSN cryoablation before TKA vs IPBSN cryoablation after TKA.**

Results

A total of 88 patients was found within the University of Kansas Medical Center database that met inclusion criteria. A total of 46 patients completed IPBSN ablation before TKA while the remainder completed nerve ablation after TKA. There was no statistical difference in pain reduction or duration of pain relief between patients who completed ablation before or after TKA.

- **Of the patients that completed IPBSN ablation BEFORE TKA, 76.9% received >40% (p<=0.001) in pain reduction and 64.7% reported duration of >3 months (p=0.06).**
- **Of the patients that completed IPBSN ablation AFTER TKA, 63.6% received >40% (p=0.03) in pain reduction and 51.3% reported duration of >3 months (p=0.50).**



Limitations

- **Patients who underwent ablation before TKA all underwent TKA after ablation.**
- **Patients without TKA history but with IPBSN history were NOT included in the study.**
- **Chart review resulted in missing data for analysis leading to exclusion of many patients.**

