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Assessment of Treatment Response of Keloid Patients

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(*) indicates primary project advisor

(**) indicates another student who is declaring the same project as primary for SI



Introduction

- Keloids = potentially genetically-driven benign tumor-like scars that grow beyond wound borders that appear to preferentially affect African Americans
- Why patients care → Range from asymptomatic, small papules to large, painful, itchy, raised plaques that are aesthetically unpleasing to patients
- Why we should care → Despite the great effect that these lesions can have on a patient's quality of life, there is still a very limited amount of research literature on how to treat them most effectively
- **WE STILL DON'T KNOW WHAT TREATMENT IS MOST EFFECTIVE!**

- No single treatment modality has proven effective, so we need adjuvant therapies

Prophylaxis

Topical Silicone Gel
Sheets

Monotherapy

Intralesional Triamcinolone

Surgical excision

Extracorporeal Shockwave Therapy

Cryotherapy

Multimodal Therapies

Injection of triamcinolone + PRP intraoperatively

Brachytherapy during excision

Excision + PRP + post-op superficial radiation

Triamcinolone injections + PRP application or 5-FU injection

Laser-assisted delivery of injected or topical steroids

- **OBJECTIVE:** determine what currently available treatment works best for keloid patients in reducing the size and symptoms of their keloids
 - Hope to build upon this information in the future as we explore new treatment options

Objectives & Hypothesis

- Research Question
 - How do patient keloid outcomes post-ILK injections compare with outcomes post-surgical excision?
- Hypothesis
 - ILK injections lead to better keloid outcomes than surgical excision.

Approach & Results

- Study design: Retrospective chart review with phone surveys
 - Retrospective study revealed the need for prospective phone surveys due to lack of detailed information in and inconsistencies between encounter notes
- Population/study sample: 504 keloid patients treated at Jefferson in the past 2 years
- Comparison group: Patients receiving ILK vs. patients undergoing surgical excision
- Outcome measures: % change in lesion size, change in symptoms (pruritis, pain; on a scale of 0-10)
- Data source and collection: phone surveys based on preliminary data collection from retrospective chart review, collected in an Excel spreadsheet

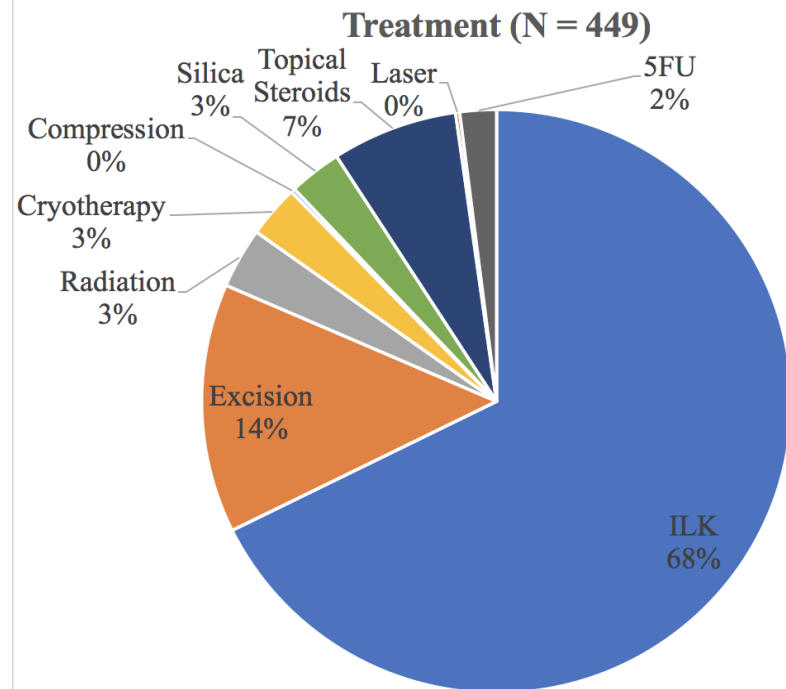
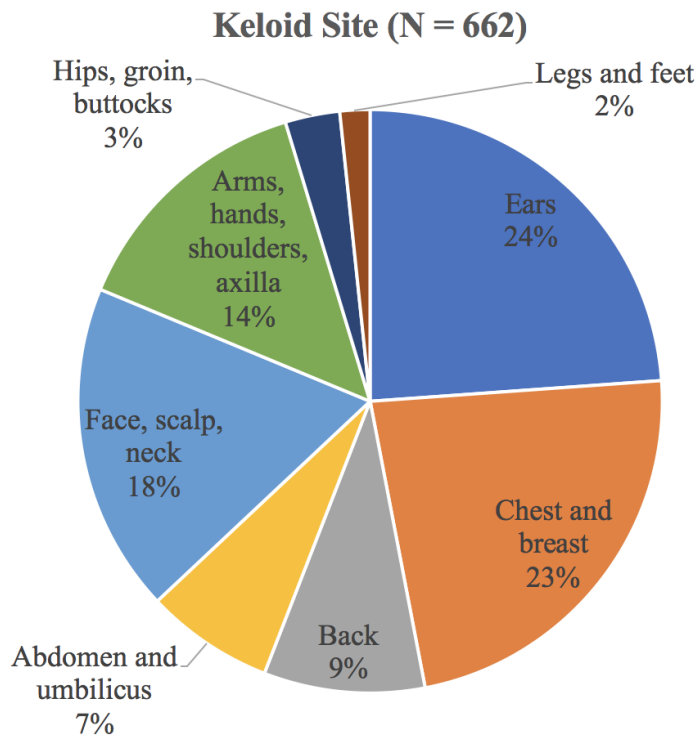
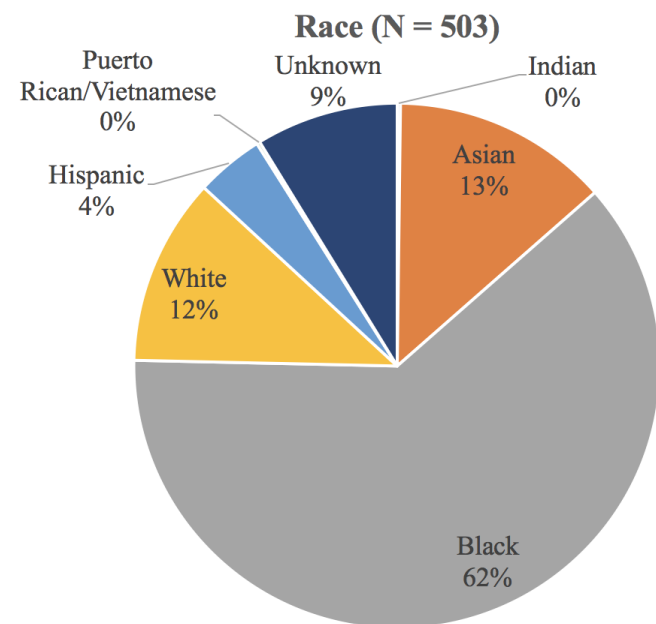
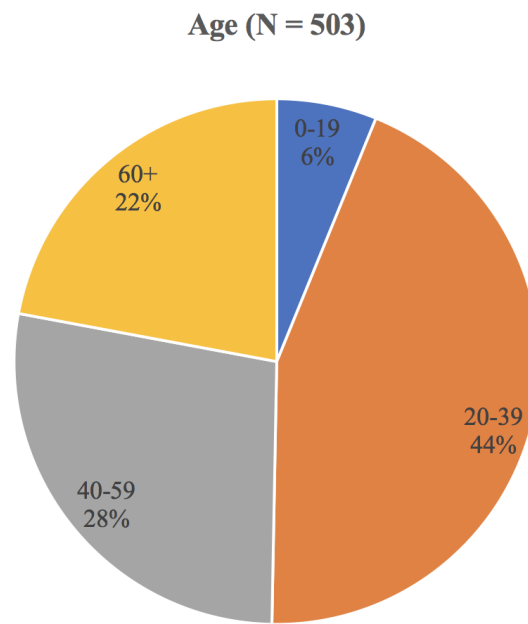
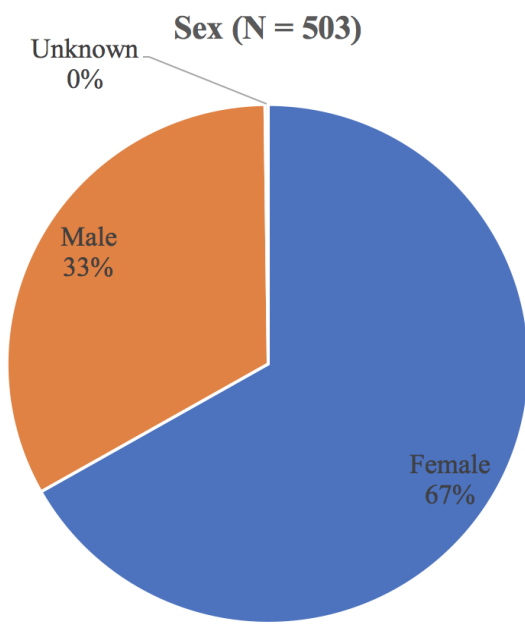


****Make sure to specify which keloid location you are talking about.**

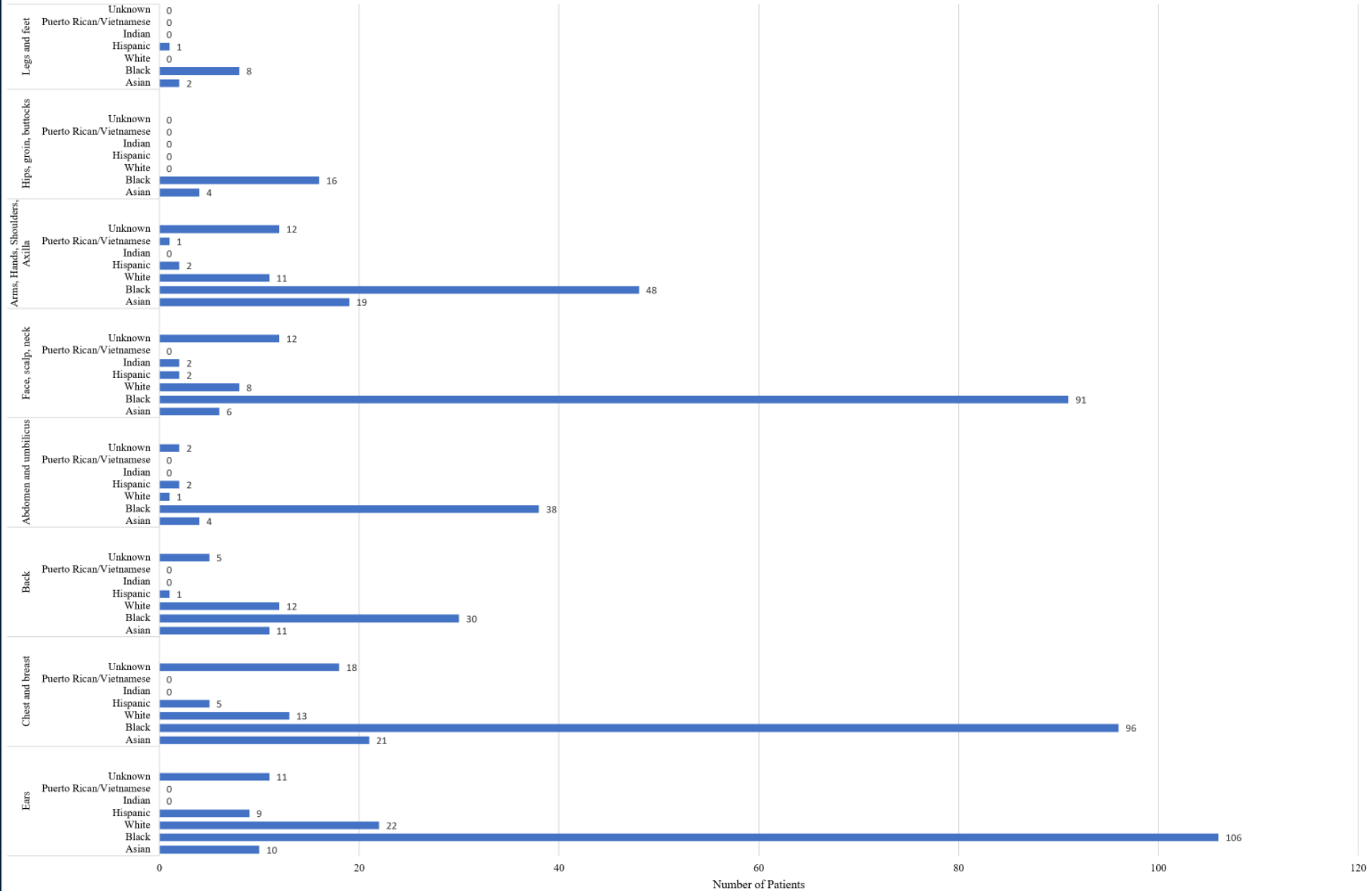
- 1) We see that you received ___ (treatment) on ___ (date).
 - a) Was this the most recent treatment?
 - b) If not, what was it, when was it, and where was it done (i.e. institution)?
- 2) If patient had an excision: did you receive any injections before or after surgery? And if so, could you tell us how many and what frequency?
- 3) We would like to ask a few questions to find out how effective this treatment was.
 - a) Did you notice any changes in size of your keloid?
 - i) Completely gone
 - ii) Up to 50% decrease in size
 - iii) More than 50% decrease in size
 - iv) No change
 - v) Up to 50% increase in size
 - vi) More than 50% increase in size
 - vii) Up to double in size
 - viii) More than doubled in size
- 4) Do you notice any changes in the pain or itch of your keloid?
 - a) Itch
 - i) Can you rate your level of itch from 0-10 before and after treatment?
 - b) Pain
 - i) Can you rate your level of pain from 0-10 before and after treatment?
- 5) Did you experience any infections of your keloid?
- 6) Do you have a family history of keloids?
 - a) Yes
 - i) What family member (i.e. sister, mom, etc.)?
 - ii) Location of family member's keloid?
 - b) No
- 7) Thank you for participating! If you would like to schedule an appointment for new keloid treatment, we will have someone from the dermatology office reach out to you. We will also email you a quick survey that focuses more on how your keloids affects different aspects of your life that you may choose to complete.

Approach & Results

- Analysis
 - Pie charts, bar graphs
 - 2-tailed t-test with equal variance
- Findings
 - 84 patients with 114 keloids responded
 - 16 keloids were excised and 90 were treated with Kenalog
 - Size change findings
 - Excision and Kenalog comparably produced some decrease in size
 - More excised keloids resolved completely vs. more Kenalog-treated keloids decreased less than 50% in size
 - Excision group showed more cases of increased keloid size
 - Symptom score findings
 - No significant difference in pruritus scores
 - Excisions reduced pain scores significantly
 - No significant differences in either symptom score within keloid location groupings

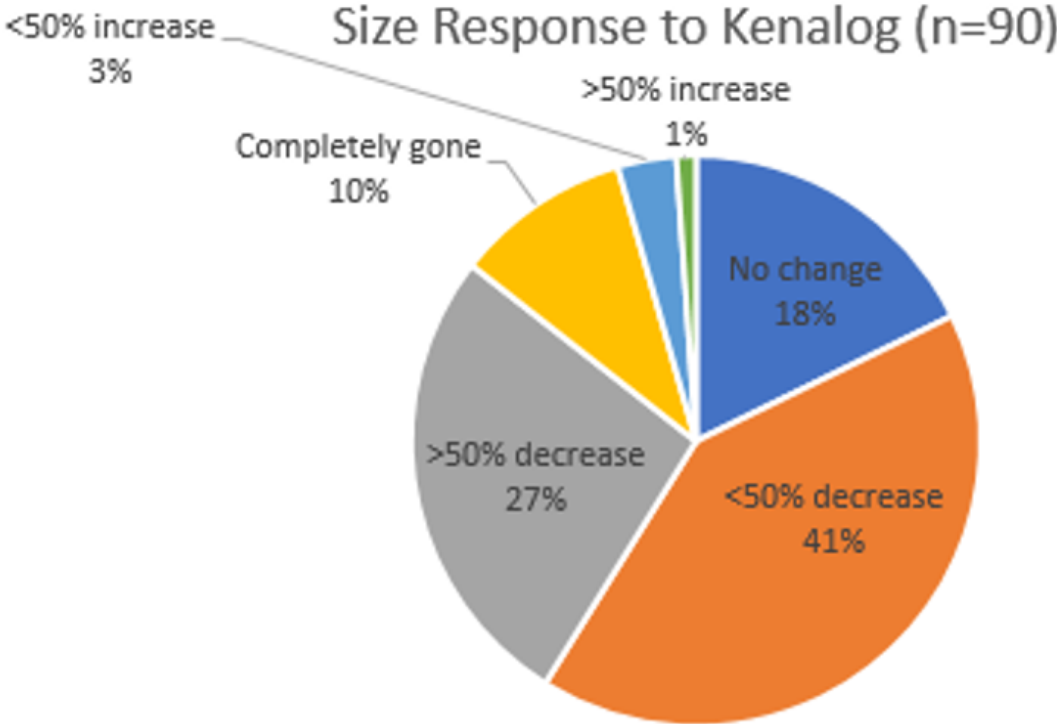


Keloid Site by Race (N = 662)

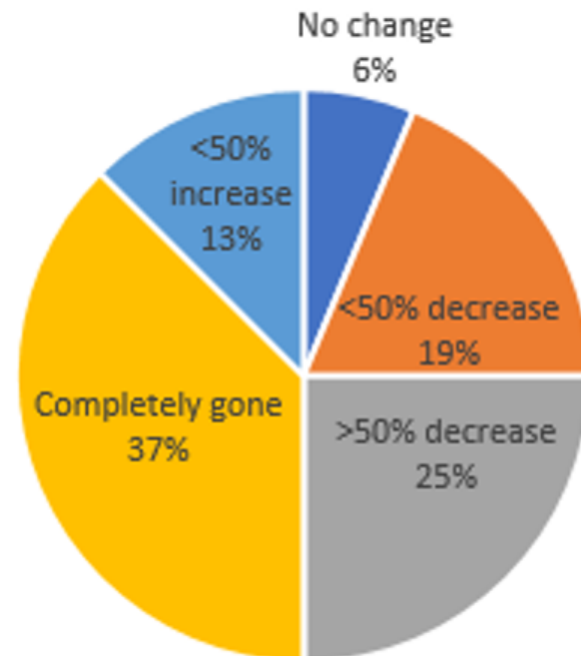




Size Response to Kenalog (n=90)



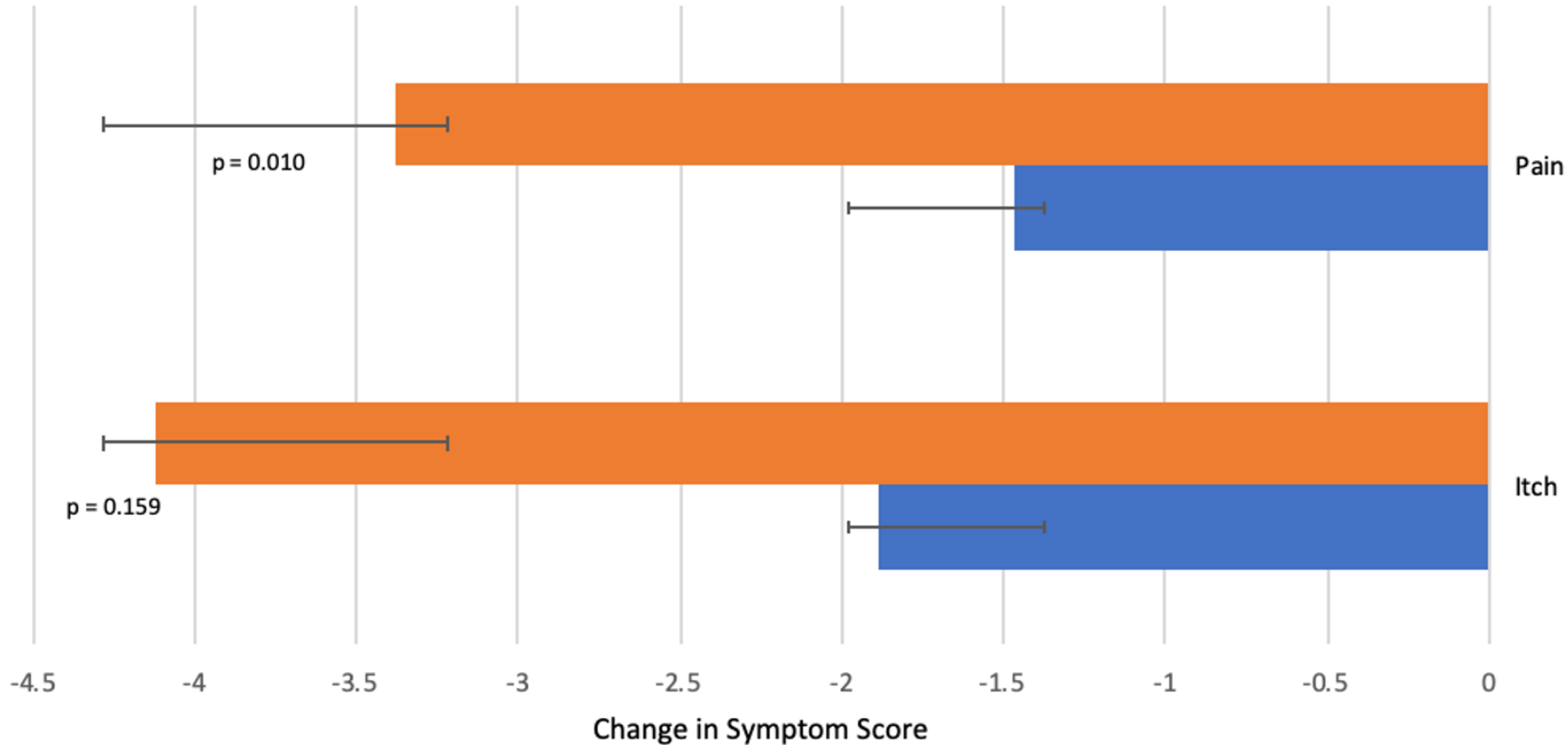
Size Response to Excision (n=16)



While excised keloids and Kenalog-injected keloids comparably produced some decrease in size (81% vs. 78%), more excised keloids resolved completely (37% vs. 10%) and more Kenalog-treated keloids decreased less than 50% in size (41% vs. 19%). However, the excision group also showed more cases of increased keloid size (13% vs. 4%).

Change in Symptom Score - ILK vs. Excision

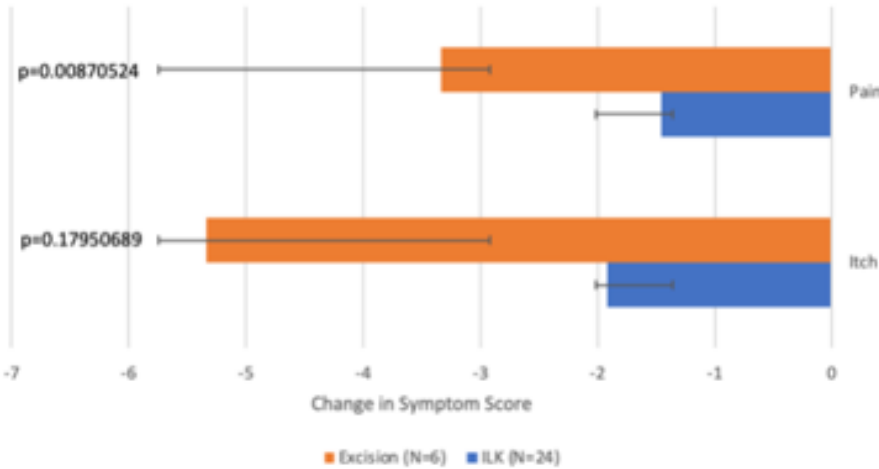
Excision (N = 16) ILK (N = 90)



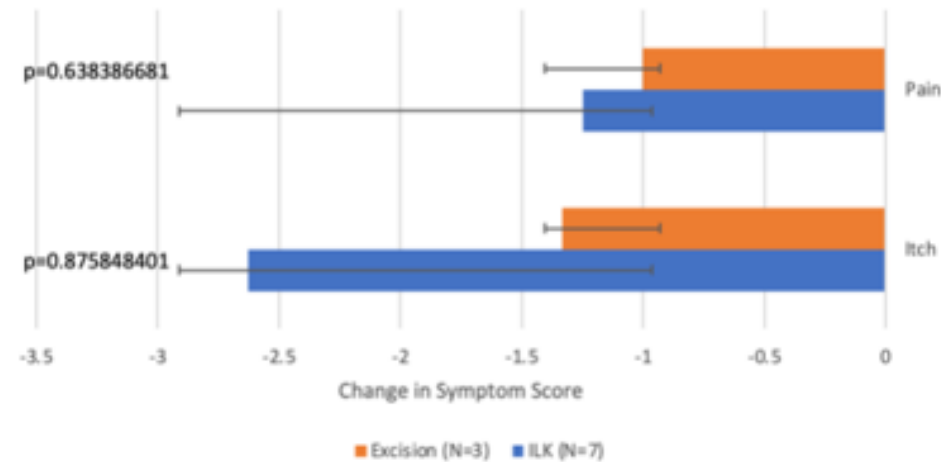
Comparison of symptom scores showed no significant difference in pruritus scores ($p = 0.159$), but demonstrated that excisions reduced pain scores significantly ($p = 0.010$).

Symptom Scores by Location

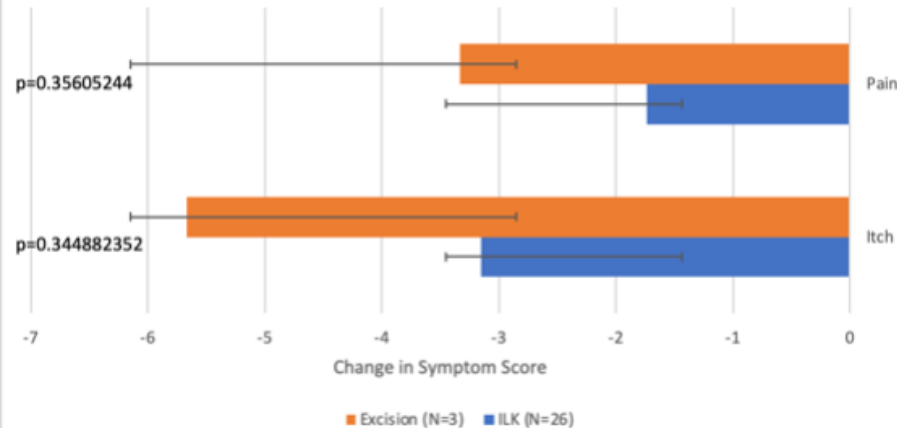
Change in Symptom Score for Ear Keloids (N=30)



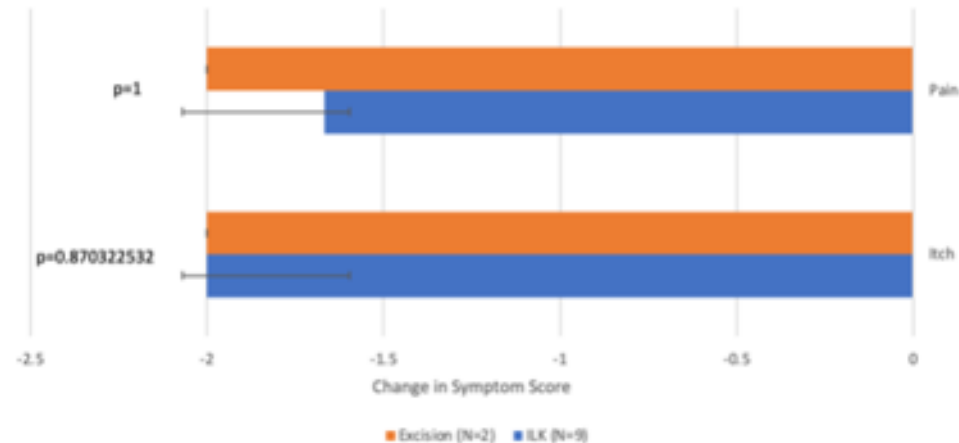
Change in Symptom Score for Back Keloids (N=10)



Change in Symptom Score for Chest/Breast Keloids (N=29)

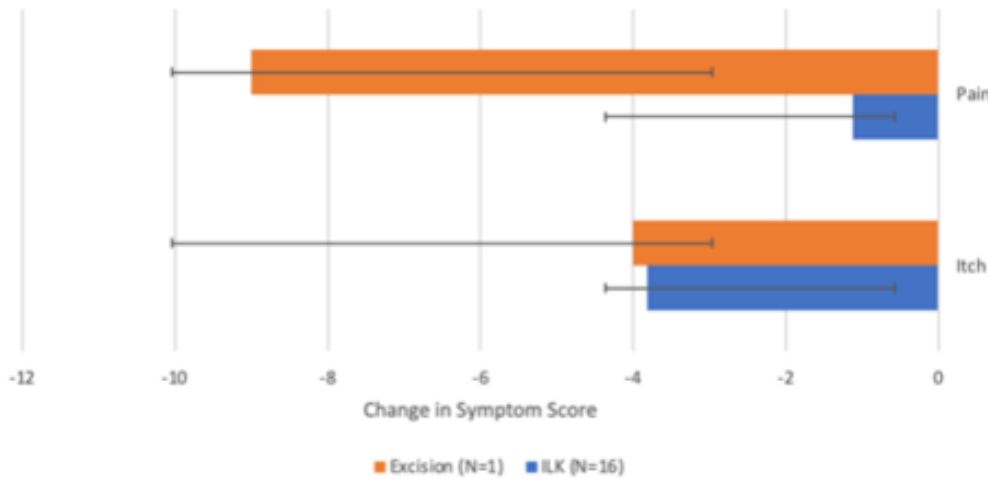


Change in Symptom Score for Arms/Hands/Shoulder/Axilla Keloids (N=11)

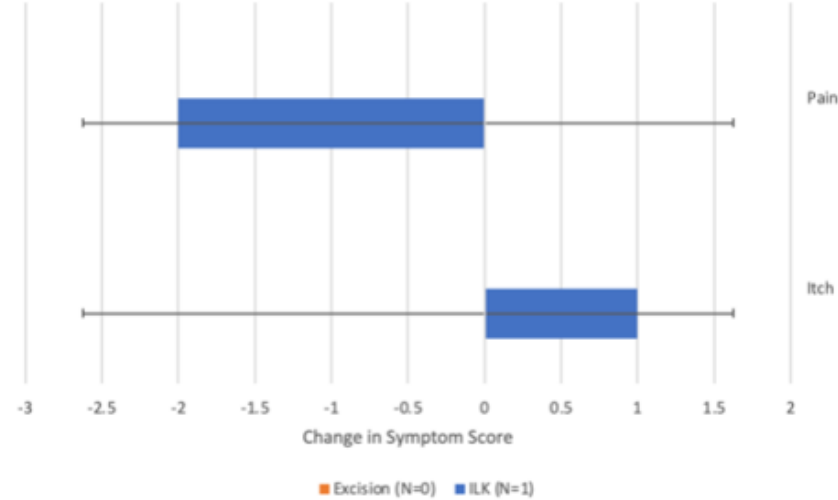


Symptom Scores by Location

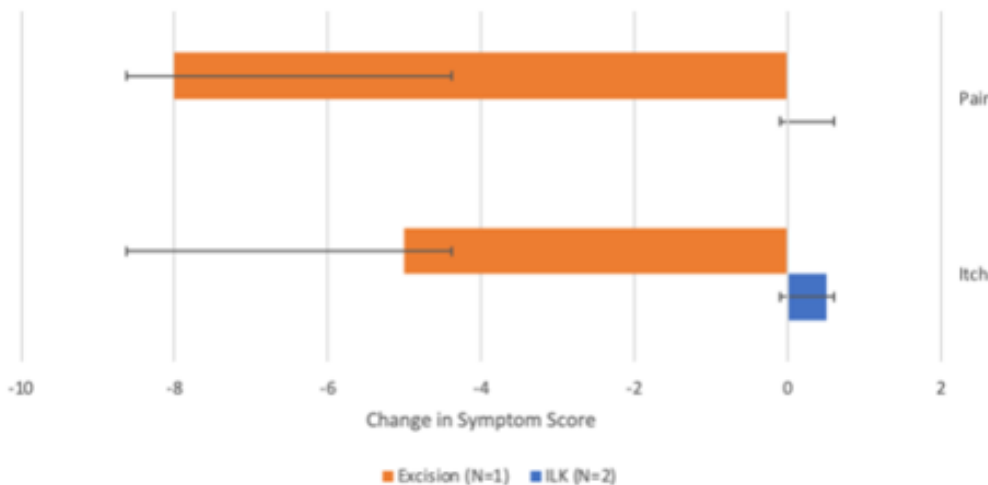
Change in Symptom Score for Face/Scalp/Neck Keloids (N=17)



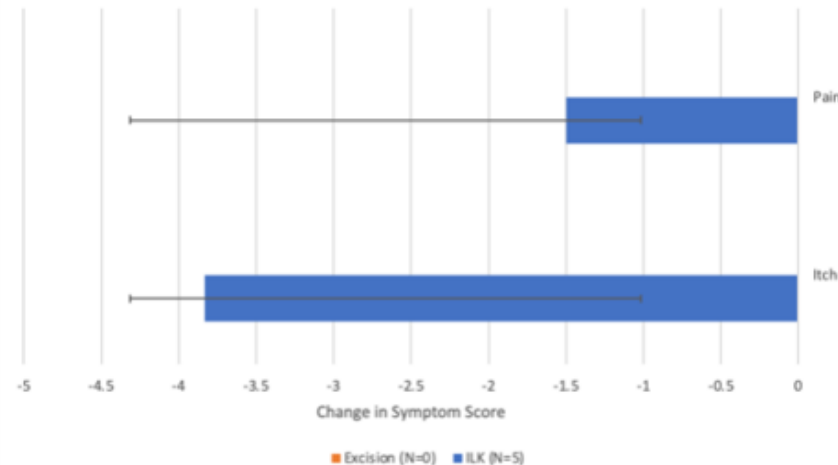
Change in Symptom Score for Legs/Feet Keloids (N=1)



Change in Symptom Score for Hip/Groin/Buttocks Keloids (N=3)



Change in Symptom Score for Abdomen/Umbilicus Keloids (N=5)



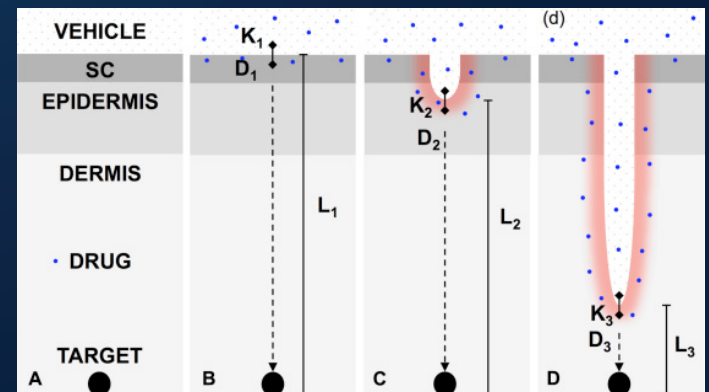


Conclusions

- The results of this study suggest that excised keloids produce better size and pain reduction than Kenalog-injected keloids
- These findings are the opposite of what was expected based on clinical experience and current literature
 - Literature suggests that 50-80% of excised keloids recur
- BUT, outcome analysis was limited by the survey responses collected, as consenting patients mainly received Kenalog treatments (90 vs. 16)
- Further research is necessary to accurately determine which treatment modality is most effective before using this data to affect clinical practice

Future Directions

- Enroll more patients through in-person surveys in the keloid clinic (especially excision patients to allow for a better comparison)
- Clinical trials of new therapies, perhaps starting with more common and bothersome keloid locations (ears, chest/breast)
 - Laser-delivered 5-FU
 - ILK+5-FU injections





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