



Evaluation of the Sterility of a Vapocoolant Spray for Use in Minor Surgery



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Introduction

The objective of this study is to evaluate skin sterility after standard alcohol antiseptic preparation followed by Pain Ease[®] Vapocoolant spray.

Vapocoolant Sprays

- Commonly called "skin refrigerants"
- Topical agents applied via aerosol can
- **Use:** reduce pain and discomfort by rapid cooling of the skin [1]
 - Minor surgical procedures
 - Athletic injury

Why Pain Ease[®] Vapocoolant?

- Fast-acting vaporization
- Sensation restored within 60 seconds
- Cost-effective (40 cents per spray)
- Non-invasive
- Non-flammable (1,1,1,3,3-Pentafluoropropane and 1,1,1,2-Tetrafluoroethane) [2]
- **Limitation:** Uncertain microbiologic properties

Previous Findings

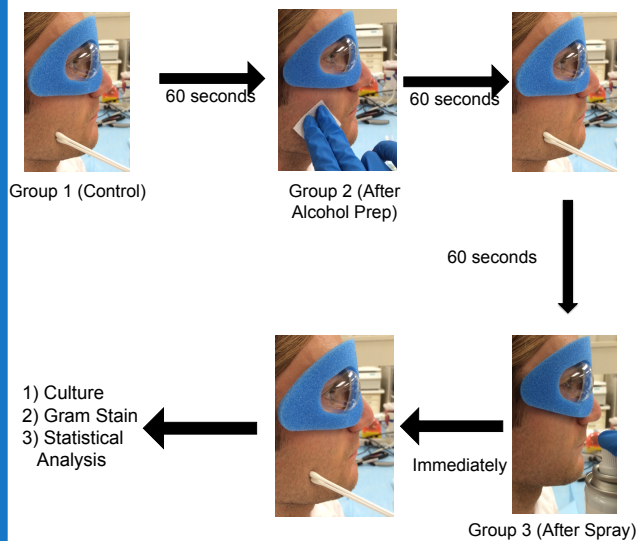
- Povidone-iodine antiseptic preparation followed by Pain Ease[®]
- No significant increase in bacterial contamination of the skin [3]

Study Design

- N = 50 healthy adult volunteers
- 3 swab cultures from same cheek area
 - 1) at time 0 prior to any skin preparation (Group 1)
 - 2) after antiseptic preparation with 70% isopropyl alcohol swabs (Group 2)
 - 3) after spraying with Pain Ease[®] (Group 3)
- Microbiological analysis in a blinded fashion
 - Bacterial count
 - Gram stain
 - Three samples of Pain Ease[®] alone
- No injections or surgical procedures



Methods



- 1) Culture
- 2) Gram Stain
- 3) Statistical Analysis

Results

Amount of bacterial growth	Group 1 (control)	Group 2 (after alcohol prep)	Group 3 (after alcohol and spray)	Prior Prep vs. After Prep	After Prep vs. After Spray
p value				p<0.001*	p=0.74*
None	1 (2.0%)	23 (46.0%)	27 (54.0%)		
Rare	7 (14.0%)	20 (40.0%)	15 (30.0%)		
Few	21 (42.0%)	6 (12.0%)	6 (12.0%)		
Moderate	19 (38.0%)	1 (2.0%)	2 (4.0%)		
Many	2 (4.0%)	0 (0.0%)	0 (0.0%)		

Results Cont.

Positive Bacteria Cultures	Group 1 (control)	Group 2 (after alcohol prep)	Group 3 (after alcohol + spray)
No growth	1 (2.0%)	23 (46.0%)	27 (54.0%)
Gram-positive cocci	49 (98.0%)	23 (46.0%)	21 (42.0%)
Gram negative cocci	0 (0%)	0 (0%)	0 (0%)
Gram positive bacilli	28 (56.0%)	10 (20.0%)	4 (8.0%)
Gram negative bacilli	1 (2.0%)	0 (0%)	0 (0%)
Yeast	0 (0.0%)	0 (0%)	0 (0%)

Discussion

- Pain Ease[®] is a safe product to use in clinics from a microbiologic standpoint
- This study complements previous findings by documenting the maintenance of bacterial suppression after appropriate antiseptic preparation
- Limitations
 - Small sample size of 50 volunteers
 - Results are applicable only to the use of 1,1,1,3,3-Pentafluoropropane and 1,1,1,2-Tetrafluoroethane Vapocoolant spray
 - Results specific to malar area of face
- Future plans
 - Replication at other injection sites
 - Implementing the use of Vapocoolant sprays during minor surgical procedures

References

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- [2] Hijazi, R., D. Taylor, and J. Richardson. Effect of topical alkane Vapocoolant spray on pain with intravenous cannulation in patients in emergency departments: randomised double blind placebo controlled trial. Bmj, 2009. 338: p. b215.
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