Modified Hall Technique to Reduce Discomfort: A Randomized Double-Blind Study

Skvor J, Miller K, Davila De Gonzalez M, Guelmann M, Magher K

The University of Florida College of Dentistry, Department of Pediatric Dentistry, Naples, FL

Introduction

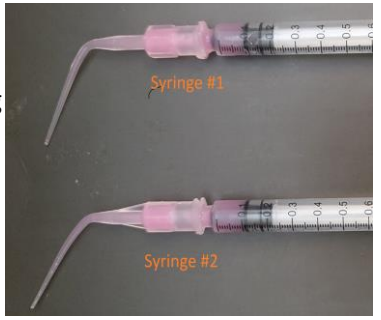
- The Hall Technique, developed by Dr. Norma Hall, was created for use when ideal treatment of carious primary teeth is not possible.
- The technique is less invasive than traditional stainless steel crown placement; it does not involve any caries removal, tooth preparation, or local anesthetic.
- While often mild, studies have shown that up to 80% of patients experience some discomfort during placement (Innes, 2007).

Objective

- To explore a modification to the Hall Technique by inserting topical anesthetic (benzocaine) into the gingival sulcus before crown placement, therefore, diminishing the potential discomfort experienced by the patient

Materials and Methods

- Healthy, cooperative, 5–8-year-old children with large or multi-surface carious lesions affecting at least one mandibular primary molar on the right side of the mouth and one mandibular primary molar on the left side with no radiographic or clinical signs of pulpal pathosis were recruited.
- Ortho separators were placed for 3-5 days.
- One 1ml syringe was filled with 0.1ml of topical benzocaine and another 1ml syringe with 0.1ml of gel toothpaste (placebo). The syringes were labeled #1 or #2 based on a randomization table.
  - Protocol A: syringe #1 was filled with benzocaine.
  - Protocol B: syringe #1 was filled with the placebo.
- The operator and patient were blind to the contents of the syringes.
- Baseline heart rate (HR1) was measured with a pulse oximeter.
- Ortho separators were removed.
- Syringe #1 contents were placed into the sulcus on buccal and lingual sides of the right molar.
- After two minutes, the tooth was wiped, and the Hall crown was placed.
- Once fully seated, the patient's heart rate (HR2) was measured again, the patient assessed their discomfort using the Wong Baker Faces Pain Rating Scale. The operator assessed the patient's behavior using the Modified Frankl Behavior Rating Scale.
- After five minutes, the patient's heart rate (HR3) was measured, and the protocol was-completed on the left primary molar using syringe #2.
- Patient's heart rate (HR4) was measured again once the crown was fully seated.



Results

Protocol	Age (in months)	Gender	HR1	HR2	% HR change	WBFPRS 1	HR3	HR4	% HR change	WBFPRS 2
A	85	F	98	100	2	0	83	90	8	0
A	74	M	79	85	14	2	72	87	21	2
A	69	F	77	76	-1	4	75	82	9	4
A	82	M	87	98	12	4	97	106	9	4
B	91	M	88	101	15	2	81	102	26	2
B	86	M	79	99	25	6	81	81	0	6
B	66	F	80	98	23	0	97	106	9	0

Conclusion

- While there were no differences in the Wong Baker Faces or Modified Frankl scores between the topical and placebo groups, the trend in heart rate change seems to suggest that intra-sulcular topical anesthetic may reduce the discomfort experienced. However, patient recruitment and data collection are still ongoing.

References

- Innes NP, Evans DJ, Stirrups DR. The Hall Technique; a randomized controlled clinical trial of a novel method of managing carious primary molars in general dental practice: acceptability of the technique and outcomes at 23 months. BMC Oral Health. 2007 Dec 20;7:18.