Antibiotic and corticosteroid dressings confer little benefit over simple excision of the inflamed pulp in the management of symptomatic irreversible pulpitis

The use of medicaments in the management of symptomatic irreversible pulpitis: a community-based cohort study

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INTRODUCTION

- Symptomatic irreversible pulpitis is the most common and impactful urgent dental condition[1]
- It is most commonly managed with antibiotic/corticosteroid dressings (ACDs) in the UK[2,3]
- There is no evidence to support the use of ACDs
- Both the antimicrobial and corticosteroid components rapidly exit the tooth[4]
- The use of antimicrobials without evidence of benefit goes against antimicrobial stewardship principles

METHODS

- Multicentre cohort study design in primary care
- Patients managed through pulpectomy or pulpotomy followed by placement of ACD (n=51) or no ACD (n=32)
- Pre-operative assessment and 7-day follow-up
- A binary score was produced based on outcome measures (Table 1)
- Groups were analysed through mixed-effects modelling

RESULTS

- **Overall success was measured as 56.6%,** with **no significant difference between groups** (p=0.645)
- **25.3% participants had to return for more treatment within 7-days** due to insufficient pain relief, with no significant difference between groups (p=0.960)
- There were **no significant differences in medication use or the ability to return to work** between groups over a 7-day period

Mean pain score following treatment

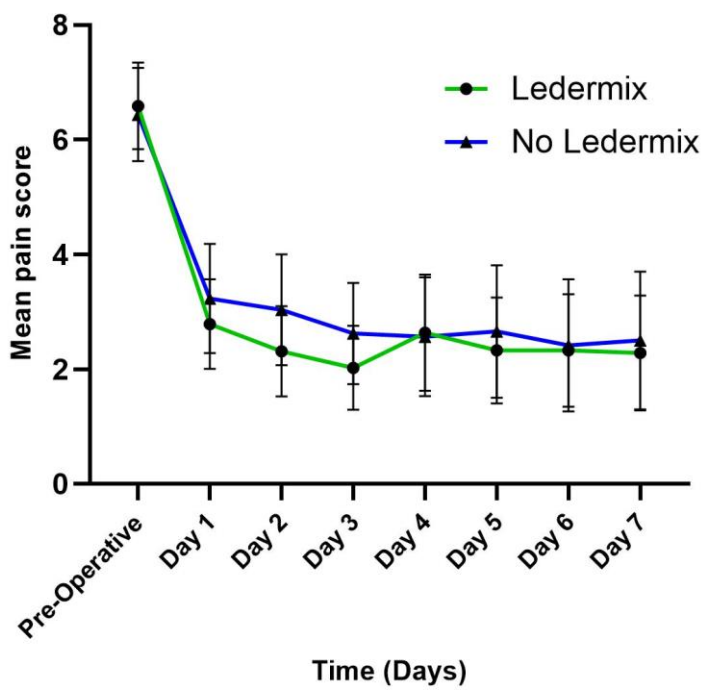

Figure 1: Symptomatic irreversible pulpitis managed with antibiotic corticosteroid dressing (ACD) or no ACD. No significant difference was found between the groups through mixed-effects modelling (p=0.515)

CONCLUSION

- This study highlights the need for further research into the benefits of ACDs
- Our management of symptomatic irreversible pulpitis **may not be as effective** as previously reported
- The use of **antibiotics** in the management of symptomatic irreversible pulpitis **requires justification**

Table 1: Criteria for binary outcome success based on sensitivity analysis undertaken at days 2,3 and 4

Outcome measure	Criteria for treatment 'success'
Need to return for more treatment	Not returned for more treatment over the 7-day follow-up period
Global ratings of change	Score of +3 (somewhat better) or greater by day 3
Use of medication	Pain relieving medication not being used by day 3
Pain score	Improvement of ≥33% (or 2-points) by day 3
Ability to return to work	Able to return by day 3

Table 2: Pre-operative characteristics for the two groups. NRS=Numerical ratings scale; OHIP-14 = Oral Health Impact Profile-14; ACD = antibiotic/corticosteroid dressing.

	Pulpotomy/ Pulpectomy + No ACD (n=32)	Pulpotomy/ Pulpectomy + ACD (n=51)	All patients (n=83)
Tooth – n (%)			
Incisor/Canine	4 (12.9)	6 (11.8)	10 (12.0)
Premolar	11 (34.4)	8 (15.7)	19 (22.9)
Molar	16 (50.0)	37 (72.5)	53 (63.9)
Missing	1 (3.1)	0 (0.0)	1 (1.2)
OHIP-14 score – Mean (SD)	26.4 (10.6)	26.9 (11.2)	26.7 (10.9)
NRS pain score - Mean (SD)	6.4 (2.3)	6.6 (2.7)	6.5 (2.5)
Medication use – n (%)			
Yes	32 (100.0)	45 (88.2)	77 (92.8)
No	0 (0.0)	4 (7.8)	4 (4.8)
Missing data	0 (0.0)	2 (3.9)	2 (2.4)
Days away from work - Mean (SD)	1.5 (3.9)	0.9 (1.9)	1.1 (2.8)
Days of symptoms – Mean (SD)	7.7 (7.8)	12.8 (13.4)	10.8 (11.8)
Pulp appearance– n (%)			
Normal bleeding	9 (28.1)	6 (11.8)	15 (18.1)
Hyperaemic	23 (71.9)	45 (88.2)	68 (81.9)
Periapical appearance – n (%)			
Normal	20 (62.5)	24 (47.1)	44 (53.0)
Radiolucency/ widening	11 (34.4)	23 (45.1)	34 (41.0)
Missing data	0 (0.0)	2 (14.3)	1 (5.6)

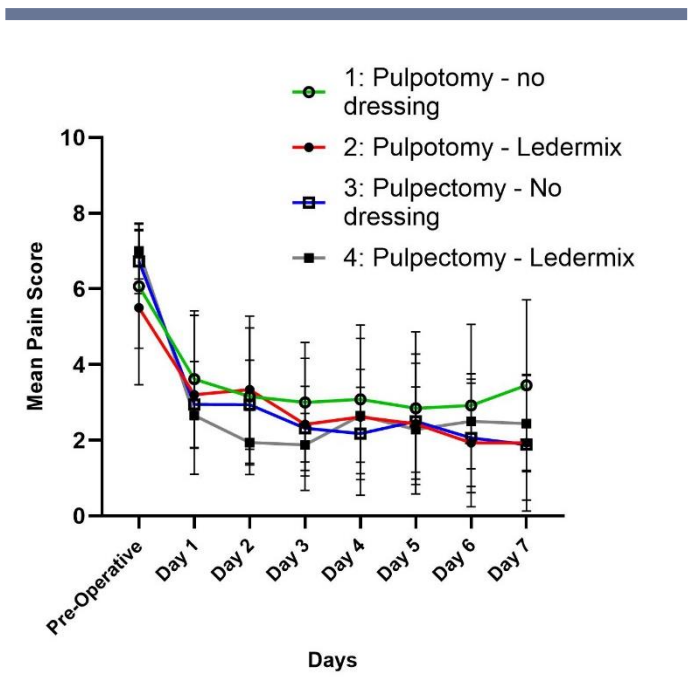

Figure 2: 7-day outcome shown as 4 groups. Pulpotomy and pulpectomy groups were combined, adjusting for the use of ACD using Mantel-Haenszel analysis for categorical variables. For continuous variables, the adjustment was achieved by using a summary measure obtained as the weighted average of the difference between pulpotomy and pulpectomy with and without the use of an ACD.

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