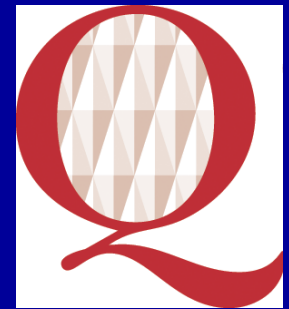


Tea tree oil for preventing colonization with methicillin resistant *staphylococcus aureus* (MRSA): A Systematic Review



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Supervisors

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Background

- Colonization with MRSA is a risk factor in acquiring clinical infections (Von Eiff et al 2001).
- Emergence of resistance to the current treatment for MRSA colonization has the potential to cause major problems in its management (Cookson 1998).
- An alternative therapy to prevent MRSA colonization would be beneficial.

Tea Tree Oil (TTO)

- TTO is known to eradicate MRSA.
- Many Laboratory studies have established that topical formulations can treat MRSA skin colonization
- Laboratory results are not always replicated in the clinical setting
- Only two clinical trials have been conducted

Clinical Evidence

- A study by Caelli et al (2000) compared TTO 4% nasal ointment and a 5% body wash with nasal mupirocin and a triclosan body wash for MRSA decolonization. It was a small study n=30 (and 12 subjects failed to complete) and therefore was inadequately powered to detect a significant difference between treatments. However it showed no adverse events.

Clinical Evidence

- Dryden et al (2004) compared nasal mupirocin and chlorhexidine body wash with TTO 10% nasal cream and 5% body wash. A larger study n=236 (12 lost to follow up) it showed no significant difference between treatments thus suggesting that TTO performs equally as well as standard treatment.
- Therefore if it works as a treatment would it work as a preventative agent?

TTO as a preventative intervention

- Topical use is safe and adverse effects are minor and uncommon (Hammer et al 2006).
- Not currently part of therapeutic treatment armoury, therefore no threat of resistance to a current treatment
- The role of tea tree oil in the prevention of MRSA colonization is unknown.

Aim

- To identify, critically appraise and synthesize the best current evidence on the efficacy of TTO in preventing colonization with MRSA.

Objectives

- Primary objective of this review is to compare topical use of TTO vs. standard topical practice in preventing colonization with MRSA.
- Secondary objectives:
 - Length of preventative treatment
 - Strength of tea tree oil used
 - frequency of MRSA screening swabs
 - length of hospital stay
 - Adverse events

Design

Inclusion criteria

- Type of studies: RCTs or quasi RCTs
- Participants: Adults or children who were not colonized with MRSA.
- Intervention: Trials comparing TTO with any other standard treatment

Search methods

- Cochrane Central Registrar of Controlled Trials [CENTRAL] (issue 4, 2008)
- Medline (1950 – Nov 2008)
- Embase (1980 – Nov 2008)
- ISI web of Science (up to Nov 2008)
- <http://clinicaltrials.gov/>
- www.controlled-trials.com
- Expert in the field Prof T Riley
- No language or publication restrictions

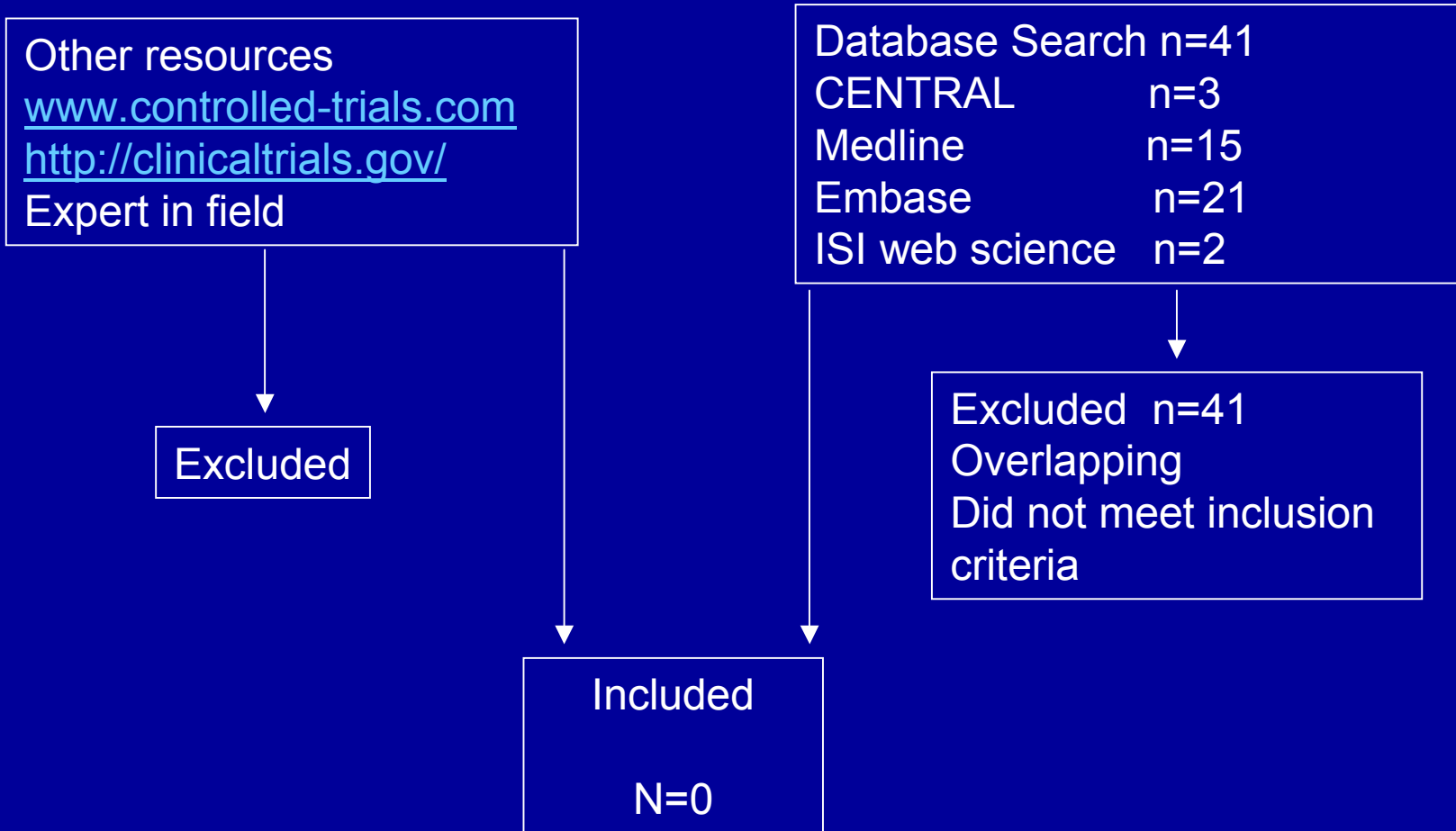
Medline Search Terms

- # 1 MRSA. mp. [mp=title, original title, abstract, name of substance word, subject heading word]
- # 2 Methicillin resistant. Mp. [mp=title, original title, abstract, name of substance Word, subject heading word]
- # 3 Staphylococcus aureus. mp. [mp=title, original title, abstract, name of Substance word, subject heading word]
- # 4 Staphylococcal infections/ or staphylococcus aureus/ or methicillin resistant
- # 5 #1 or #2 or #3 or #4
- # 6 Anti-bacterial agents/ or skin colonization. mp.
- # 7 colonization. mp. [mp=title, original title, abstract, name of substance word, subject heading word]
- # 8 #6 or #7
- # 9 Tea tree oil. mp. or "Tea Tree Oil"/
- # 10 Melaleuca alternifolia. mp. or Melaleuca/
- # 11 #9 or #10
- # 12 #5 and #8 and #11

Data collection & analysis plan

- Initial review of titles and abstracts to determine eligibility.
- Retrieval of full text studies for data extraction (2 independent reviewers).
- Assessment of study quality using Cochrane Collaborations tool for assessing risk of bias.
- If possible, meta analysis using review manager (RevMan 5.0)

Results



Results

- 41 studies were excluded. Reasons for exclusion: Either laboratory based studies or looked at eradication of MRSA colonization rather than prevention.
- In spite of laboratory and clinical evidence supporting the efficacy of tea tree oil in eradicating MRSA, this review failed to uncover evidence on its effectiveness in preventing colonization with MRSA.

Implications

- Based on the findings of this review we are unable to make any recommendations for the use of TTO in preventing colonization with MRSA.
- Urgent need for RCTs to evaluate the role of tea tree oil in preventing MRSA colonization.
- Future trials should consider appropriate sample size with the power to detect differences.
- Careful elucidation of adverse effects and cost-effectiveness of the therapy.

Thank you

Any Questions?