The Use of Topical Olive Oil as an Effective Preventative Measure for Pressure Ulcers: A Systematic Review

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Definitions

Pressure ulcers (according to the National Pressure Ulcer Advisory Panel) - "localized areas of tissue necrosis that tend to develop when soft tissue is compressed between a bony prominence and an external surface for a period of time" [1]

Increased risk - bedridden, immobilized, wheelchair dependent, hospital or nursing home admission

Standard of care for pressure ulcer prevention (in accordance with the guidelines to clinical practice on the deterioration of skin integrity) - routine skin checks, changing position every 2 hours, and use of a pressure relieving mattress[2,3]

Introduction

- Pressure ulcers (PU) affect roughly 3 million adults across all healthcare settings in the United States annually[2]
- PUs negatively affect an individual's health status, as well as quality of life, and significantly increase the financial burden on the healthcare system[3]
- PUs are a preventable complication
- Little research has examined the use of olive oil as a preventative measure for PUs

Purpose

The purpose of this systematic review was to determine if the supplementation of topical olive oil impacts the development of pressure ulcers in patients who are classified as increased risk.

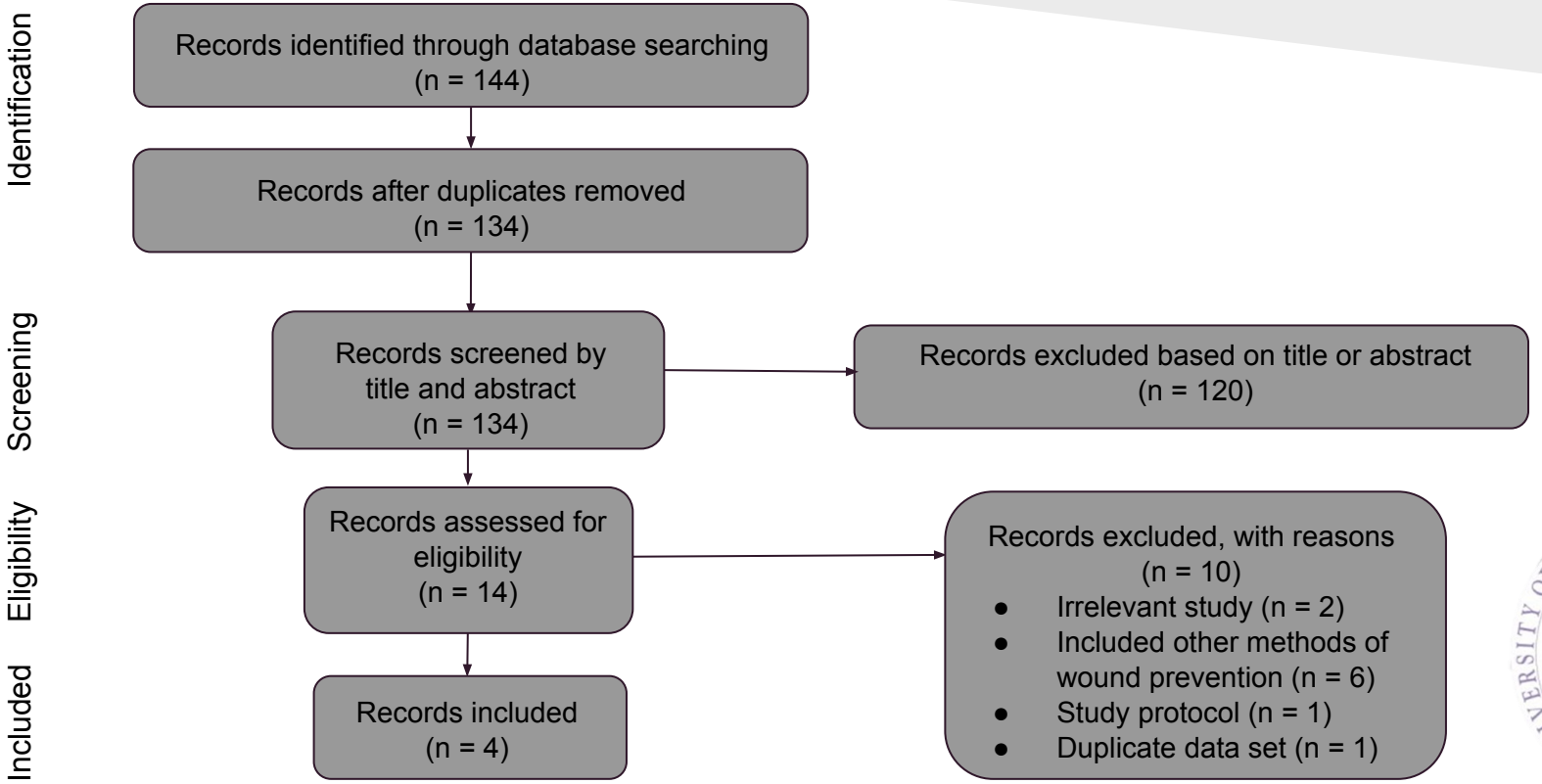
Methods

- Search Engines:
  - ProQuest, CINAHL, PubMed, Google Scholar
- Limits:
  - Peer Reviewed, 2007-2017, Human Subjects, English & Spanish, Scholarly Journals, Adults 18+ years of age

Search Terms

"Pressure Ulcers" **OR** Bedsores **OR** Wounds **OR** "Pressure Sores" **AND** "Olive Oil" **AND** Prevention

PRISMA


Identification
Screening
Eligibility
Included
Records identified through database searching (n = 144)
Records after duplicates removed (n = 134)
Records screened by title and abstract (n = 134)
Records excluded based on title or abstract (n = 120)
Records assessed for eligibility (n = 14)
Records excluded, with reasons (n = 10)
Irrelevant study (n = 2)
Included other methods of wound prevention (n = 6)
Study protocol (n = 1)
Duplicate data set (n = 1)
Records included (n = 4)

PEDro Scores

Author, Year	1	2	3	4	5	6	7	8	9	10	11	Total
Lupianez-Perez et al. (2015)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	**10/10**
Diaz-Valenzuela et al. (2014)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	**10/10**
Madadi et al. (2015)	Y	Y	**N**	Y	**N**	**N**	**N**	Y	**N**	Y	Y	**5/10**
Hawaibam et al. (2016)	Y	**N**	**N**	Y	**N**	**N**	**N**	Y	**N**	Y	Y	**4/10**

Results

- Samples ranged from 40-831 subjects (1,160 total)
- Treatment parameters varied widely
  - Durations ranged from 1 to 16 weeks
  - Settings included home-based, nursing home, and hospital
  - Frequency of application varied between 1 to 2 times per day
  - Location of oil application included the sacrum, heels, ears, iliac crests, scapulae, and ankles
  - Method of application

Results

- Only 6.01% of subjects developed PUs across all groups using olive oil compared to 10.52% in the control groups
- Primary outcome measures in 3 out of 4 studies included PU staging I-IV through observation by a trained professional
- Two out of 4 studies showed significant effects using olive oil for PU prevention; the other 2 studies showed olive oil was as effective as hyperoxygenated fatty acids
- The use of olive oil prolongs the time of developing a PU by at least 3.2 days[2]
- No adverse events were reported as a result of the intervention

Conclusion

- There is **moderate to strong evidence** in support of using topical olive oil to prevent PU development in at-risk patients in the hospital, nursing home, and home setting
- The use of topical olive oil for PU prevention is effective when applied 1-2 times per day to high risk areas

Limitations

- Only 4 databases were used in the search
- Small sample size
- Inadequate long-term patient follow-up
- Studies varied by mode, frequency, and duration of application of olive oil
- Not all studies explicitly stated using the standard of care

Future Research

Future studies should focus on:

- The use of olive-oil-based products among low-risk subjects
- Providing clearer instructions regarding the intervention
  - Time of application
  - Method of application
- Determining optimal parameters for using olive oil as wound care prevention
- Different types of olive oil

Clinical Relevance

- Olive oil is an inexpensive and widely available product
  - Natural antioxidants with high resistance to oxidative processes[3]
  - Compatible with human tissues
- Prevention is crucial
  - Contributes to quality of life
  - Decreases burden on caregivers
  - Decreases healthcare expenditure

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Questions?