DIABETES-RELATED FOOT CARE INTERVENTIONS FOR PREVENTING DIABETIC FOOT ULCERATION: A SYSTEMATIC REVIEW OF LITERATURE.

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Globally, an estimated 422 million adults are living with diabetes mellitus (DM), according to the latest 2016 data from the World Health Organization.

In the United States alone, 30.3 million individuals have diabetes mellitus (DM).

- 12.2% of all U.S. adults
- 5% Type I DM in the U.S.
- 90 – 95% Type II DM in the U.S.

Diabetic foot ulcers (DFUs) are one of the most significant and devastating complications of diabetes mellitus.

Globally, an estimated individual experience DFUs related amputations every 30 seconds.
SIGNIFICANCE OF DFUs

Morbidity and Mortality
• Incidence rates
• Mortality rates
• Re-ulceration rates
• Prolonged hospitalization
• Amputation, and disability
• Quality of Life
SIGNIFICANCE OF DFUs IN THE U.S.

The Financial and Economic Effects

• Healthcare system

• Cost of Management and Care

• Cost to Patients’ and Families
OBJECTIVES

• To assess the effectiveness of foot care intervention

• Support the development and delivery of clinical and educational intervention

• To establish gaps in nursing research

• inform future studies

• Support nurses roles of advocacy
METHODS

- PubMed, CINAHL, Psych-info, Cochrane Reviews and Google scholars databases were searched for articles from published from 2001-2016.

- Limited to English Language published randomized controlled trials (RCTs) and Systematic reviews evaluating the foot care interventions for preventing DFUs in diabetes patients with or without DFUs.

- Titles, abstracts, and articles were reviewed by at least two independent reviewers.

- Study data and quality were abstracted.

- Findings reported according to the “Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)”.

- RCTs evaluated for risk of Bias using Cochrane Collaborative Tool
<table>
<thead>
<tr>
<th>ITEMS</th>
<th>INCLUSION</th>
</tr>
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<tbody>
<tr>
<td>Population</td>
<td>Adults with type 1 or type 2 diabetes Without or without DFUs</td>
</tr>
<tr>
<td>Interventions</td>
<td>Required</td>
</tr>
<tr>
<td>Diabetes Foot Care</td>
<td>Required</td>
</tr>
<tr>
<td>Outcome Measures</td>
<td><strong>Primary</strong>: foot care practices, foot ulcers, re-ulceration, and foot amputations.</td>
</tr>
<tr>
<td></td>
<td><strong>Secondary</strong>: diabetes foot care knowledge, foot care behaviors, callus development and hospital admissions</td>
</tr>
<tr>
<td>Timing</td>
<td>Short and long term, any dates</td>
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</tbody>
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SEARCH STRATEGY (PUBMED)

• “Diabetes mellitus“ Type 1 or Type 2 [MeSH Terms]) OR diabetic foot ulcers [MeSH Terms]) AND (foot care OR footcare [MeSH Terms]) AND (knowledge OR practices [MeSH Terms])

AND
• Interventions

AND

• Systematic Reviews or Randomized Controlled Trial; Publication date from 2001/01/01 to 2016/12/31; English; Adult
Records identified through database searching (n=19) Pub=6, Cinahl=9, Coc=3, Psy=1

Additional records identified through Google Scholar and Google (n=5)

Records after duplicates removed (n=4)

Records screened (n=20)

Records excluded (n=1)

Full-text articles assessed for eligibility (n=19)

Full-text articles excluded, with reasons (n=6). Not addressing foot care (n=2), Editorial review (n=1), Article reviews (n=2), Case study review (n=1)

Studies included in qualitative synthesis (n=13)

Studies included in quantitative synthesis (meta-analysis) (n=13)
FINDINGS/RESULTS

• 263 titles identified in the original search

• 13 peer-reviewed publish articles finally included: (9 systematic reviews, 4 RCTs).

• Short follow-up period (mean: 6 months to 12 months)

• Most studies were precluded by methodological flaws.

• Few interventions have been successful
FINDINGS/RESULTS

• Educational interventions improve patients self-foot care knowledge, practices and behaviors at short-term only.

• Improvement in foot care practices and behaviors are not sustained by diabetes patients at long term.

• Limited study provide evidence of reduced DFUs, re-ulceration, and amputations. Only one RCTs study showed significant reductions in DFUs and amputation rates.

• Diabetes foot care complex interventions however yielded little evidence of benefits.
CONCLUSION

- Foot care interventions to prevent DFUs still remains very challenging.

- Educational interventions alone is insufficient in significant reduction of DFUs.

- There is promising evidence that foot care complex interventions may reduce DFUs incidence.

- No robust evidence to support the effectiveness of the current clinical education on DFUs and amputation reduction.

- There is a paucity of high quality evidence. The overall quality of intervention studies should further improve so that stronger recommendations can be provided for clinical practice.
CONCLUSIONS

• Future research should consider RCTs with multi-sites longitudinal design and long term follow-up period.

• Future RCTs should focus on designing individualized patient-centered interventions and accounts for powered samples, methods of randomization and proper reporting of sample characteristics.

• There is gap in research on the best foot care practices intervention for primary and prevention of DFUs.

• It is imperative to design more high quality RCTs, to provide stronger recommendations to clinicians and healthcare practitioners on the best clinical and educational interventions to prevent DFUs.
LIMITATIONS

• Only one reviewer was extensively involved in reporting findings.

• The heterogeneity of the RCT studies made it impossible to create a funnel plot to evaluate the presence of publication bias.

• Included studies used different tools to assess primary and secondary outcomes. Therefore, it was not feasible to evaluate the clinical relevance of the statistically significant improvements reported.
REFERENCES


THANK YOU & QUESTIONS

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