



PROBIOTIC PROPHYLAXIS IN OLDER PATIENTS

Elderly patients who have infections have a higher mortality rate than younger patients. Between 1990 and 2002, there were more than 21 million infection-related hospitalizations in elderly patients in the United States. Preventative strategies have included immunization, sanitation, and hygiene measures. Probiotics have been suggested to reduce the occurrence of infection in this population. This issue of *CLIPs* reviews a systematic review to assess the effectiveness and safety of probiotics in the occurrence of infections in older adults compared to placebo. If you need further information, please contact the Center for Healthcare Innovation and Patient Outcomes Research (CHIPOR) at chipor@samford.edu.

Wachholz PA, Nunes VD, Valle AP, Jacinto AF, Villas-Boas PJ. Effectiveness of probiotics on the occurrence of infections in older people: systematic review and meta-analysis. *Age and Ageing*. 2018;47:527-536.

Introduction

- Randomized clinical trials (RCTs) and systematic reviews have shown that probiotics may be beneficial in occurrence, duration, and severity of infections in pediatric patients.
- Probiotics have been used for the prevention of non-infectious diarrhea secondary to antibiotics and to reduce *Clostridium difficile*-associated diarrhea.
- However, controversial information is available regarding the benefit of probiotics in reducing the incidence of infectious disease processes in older patients.

Methods

- Only RCTs were included in the review.
- Observational study designs and non-standard experimental designs were excluded.
- Studies had to recruit patients aged 65 years or older. Only data pertinent to elderly populations were included when studies were included that were conducted in mixed generational patients.
- Patients with nosocomial infections were excluded.
- Those who were critically ill, immunocompromised or experiencing oncologic and post-operative conditions were excluded.
- Only placebo comparisons were considered.
- The primary outcome was occurrence of infection, incidence of adverse events; mortality; and quality of life.
- Several databases were searched including Cochrane Central Register of Controlled Trials, Medline, EMBASE, Science Citation Index, and Latin American and Caribbean Health Science.
- Subgroup analyses were considered for the following patient populations (age 65-80 years; older than 80 years), coexistence environment (e.g., institutionalized, hospitalized, community-dwelling); type of probiotics; and type of infection.

Results

- A total of 5,036 studies were located and 15 articles were included in the systematic review.
- The studies included in the review enrolled 5,916 participants (intervention = 2959; control = 2957).
- The mean age was 75.2 years and the median follow-up time was 319 days.
- Eight reports only enrolled older patients, which comprised 86.3% of patients.

Results (continued)

Effectiveness-Occurrence of infection

- No significant differences were found between probiotics on the occurrence of infection compared to placebo (13 trials; 5,280 participants; RR, 0.86; 95% CI, 0.70-1.07).

Effectiveness-Adverse events

- No significant differences between probiotics and placebo for adverse events (RR, 1.01; 95% CI, 0.91 to 1.12).
- The most common adverse events that were observed were related to gastrointestinal disorders: constipation, abdominal pain and cramping, flatulence, nausea and gas bloating.

Effectiveness-mortality

- No significant differences on general mortality was observed between probiotics and placebo (5 trials, 669 participants, 77 events; RR, 1.09; 95% CI, 0.70 to 1.72).

Effectiveness-Quality of life (QoL)

- A total of three trials described QoL as an outcome, but only two provided data for comparison. SMD was used to evaluate QoL (SMD -0.09; 95% CI, -0.99 to 0.81).

Effectiveness-Mean duration of infection per episode

- No significant differences were observed between probiotics and placebo with regard to mean duration of infectious disease episodes (7 trials, 1,406 participants, MD -0.35; 95% CI, -1.57 to 0.87).

Conclusion

- Evidence does not support use of probiotics for the reduction of the occurrence of infection in older patients.
- Gastrointestinal discomfort was most common adverse event that was noted.