

Evidence-Based Recommendations for Providers and Nurses Prescribing and Administering Probiotics



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Background

- *Saccharomyces boulardii* is a strain of *Saccharomyces cerevisiae*, a species of yeast, and is used in the probiotic preparation for the prevention and treatment of various diarrheal disorders (Enache-Angoulvant & Hennequin, 2005)
- *Saccharomyces* fungemia secondary to the use of the probiotic has been described for patients who have a central line (Venugopalan, Shriner, & Wong-Beringer).
- Central line infections are associated with an increased length of stay, increased medical care costs, medical complications, and may even lead to death

Objective

- Inform nurses and providers about evidence-based recommendations and contraindications for administering probiotics (i.e. *S. boulardii*) to patients with central lines

Benchmarking Results

An e-mail query was sent through the CNS Listserv with the following responses:

Location	Do you prescribe probiotics to patients with central lines?
(Metro St. Louis/ mid-Missouri/Southern Illinois area)	Not ordered
Greenville, NC	Not ordered
Atlantic City, NJ	Not ordered
Cheyenne, WY	No, the physicians do not prescribe probiotics for patients with central lines
Wisconsin	Yes, if it is in capsule form. Otherwise we discuss risk benefit; it is not an absolute.
Coupeville, WA	We do provide them in patients with central venous catheters (CVC) but do not allow the capsules to be opened in the patient room.

Literature Review Findings

- Search Methodology: Summon Database, five articles were retrieved.
- Keywords: *saccharomyces boulardii*, central venous catheter
- Limiters: Date: 2000 - 2017, pediatric OR Adult patients
- Enache-Angoulvant and Hennequin (2005) conducted a comprehensive literature review and identified 91 documented cases of invasive *Saccharomyces* infection in the literature
- Munoz et al. (2005) conducted a literature review and identified 60 cases of fungemia caused by *S. cerevisiae*
- One probiotic medication which contains *S. boulardii* states in the insert that patients with a central line consult a healthcare professional before beginning therapy as "very rare cases of fungemia have been observed in patients with a central venous catheter" (Venugopalan, Shriner, & Wong-Beringer, 2010)
- Opening the packet of medication induces air contamination with *Saccharomyces*, which can lead to the contamination of the surrounding surfaces (Hennequin et al., 2000)
- The hands of a technician who had opened the packet were highly contaminated even though they washed their hands vigorously (Hennequin et al., 2000)

Evidence-Based Recommendations for Providers

- Consider risk vs. benefit when prescribing probiotics to patients
- Avoid prescribing *S. boulardii* for patients who are immunocompromised, critically ill, or have a central line (Venugopalan, Shriner, & Wong-Beringer, 2010)
- Consider discontinuing *S. boulardii* when patients receive a central line

Evidence-Based Recommendations for Nurses

1. Make sure not to open drug capsules or powder near patients with central lines because aerosolized spores could cross-contaminate sterile sites of patients receiving the probiotic and other patients nearby
2. Wear gloves during the handling of probiotics
3. Promptly discard gloves
4. Wash hands with soap and water after handling

(Venugopalan, Shriner, & Wong-Beringer, 2010)



Conclusion

- These recommendations will enhance awareness of methods to prevent central line infections for patients taking probiotics (i.e. *S. boulardii*)
- The evidence is limited, and the literature is focused mostly on *S. boulardii*. Further research is needed

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