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Probiotics effect on group B *Streptococcus* (GBS) recto-vaginal colonization in pregnant and non-pregnant women: A systematic review of published randomized controlled trials

Background & Aims: Probiotics have been suggested as a safe strategy to prevent or reduce the prevalence of GBS recto-vaginal colonization in pregnant and non-pregnant women. Probiotics are not yet part of the clinical practice for prevention of GBS recto-vaginal colonization in women and less physicians recommend probiotics in prenatal to maintain urogenital health. The aim of this study was to systematically review the published controlled randomized trials (RCTs) on the effects of probiotics on Group B *Streptococcus* recto-vaginal colonization.

Methods: Literature searches were made up to September 2017. This systematic review included the published randomized, double-blind or open label, and placebo-controlled trials on the effects of probiotics on Group B *Streptococcus* (GBS) recto-vaginal colonization in pregnant and non-pregnant women. The PubMed, Medline, HEN, Google Scholar and Cochrane Central Register of Controlled Trials were searched for keywords.

Results: A total of four studies, incorporating two pilot RCTs, were identified as eligible for analysis. Three studies were conducted in low risk pregnancies. Two of the studies examined the efficacy of probiotics in pregnant women who presented as GBS positive at 35-37 weeks of gestation. One of the RCTs showed significant (GBS) culture change from positive to negative in 21 women in the probiotic group (42.9%) and in nine women (18.0%) in the placebo ($p=0.007$). The sample size in the two pilot RCTs that aimed to examine the effect of an oral prenatal probiotic on (GBS) colonization in pregnancy were too small to draw meaningful conclusions. The randomized controlled trial in non-pregnant and healthy fertile women showed a significant reduction of GBS recto-vaginal colonization

in intervention group compare placebo group ($p=0.036$). Overall, heterogeneity in choice and dose of probiotics, and lack of enough statistical information made it impossible to do a meta-analysis. The Cochrane Collaboration's tool for assessing risk of bias showed 3 of 4 reviewed randomized controlled trials had poor quality.

Conclusion: There is inadequate evidence related to the use of probiotics for either prevention or treatment of GBS recto-vaginal colonization in pregnancy. The reviewed studies have provided suggestion of benefit of probiotics in prevention of GBS recto-vaginal colonization, nevertheless, available evidence is not sufficient to support the routine administration of probiotics to reduce GBS colonization in pregnancy. Further investigation with better design and larger studies are needed regarding the efficacy and safety of specific probiotics strains in pregnancy.

Speaker Biography

Roksana (Roxana) Behruzi is working as an Assistant Professor at McGill University, Department of Family Medicine, and a Clinician Researcher in the Research Center at CISSS in Outaouais. She has more than 20 years of experience in both teaching and clinical research. She has a Master's degree (MSc) in Midwifery and she completed a PhD in Public Health at the University of Montreal, during which she obtained many awards and bursary from CIHR, STIRRHs, Bourse Étude Supérieur en Santé Publique, and Japan Society for the Promotion of Science (JSPS) Fellowship. In 2008, she accomplished a Fellowship in Japan on maternity care services. She also accomplished three years Post-doctoral fellowship at the Department of Family Medicine at McGill University, for which, she was awarded two times the Fond de Recherche en Santé du Québec (FRSQ). She collaborates with GCP Trials Center in Montreal, in where, she provide workshops in good clinical practice for clinical research staff. Her latest research interest is working on the safety and efficacy of probiotics on Group *Streptococcus* (GBS) recto-vaginal colonization in pregnancy.

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