

## The inhibitory effect of *Lactobacillus rhamnosus* GG on vancomycin resistant *Enterococcus faecalis* colonization in mouse

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**Background and Aims:** Vancomycin Resistant Enterococci (VRE) are the most common nosocomial pathogen worldwide. The intestinal tract provides a major source for transmission of these bacteria. Probiotics are living microorganisms that moderate uses of them have beneficial effects on intestinal colonization by enteric pathogens. We examined the effect of *Lactobacillus rhamnosus* GG (LGG) on inhibition of vancomycin resistant *Enterococcus faecalis* colonization in mouse model.

**Methods:** 24 mice were controlled for a week and then were infected to VRE by receiving oral vancomycin (250µg/ml) and VRE suspension in MHB (8.7 log<sub>10</sub> CFU/ml). Mice assigned to two random groups: treatment group and control group, and the effect of LGG probiotic surveyed in the treatment group and compared with control group. VRE, total enterococci, and enteric gram-negative bacilli counts in feces were determined before and after colonization by VRE.

**Results:** At first, all mice were colonized by non –Vancomycin Resistant Enterococci (mean 5.7 log<sub>10</sub>CFU/g for 7 days), and Vancomycin resistance was not detectable. Following gastric inoculation of VRE and receiving oral vancomycin, VRE colonized in gastrointestinal tract of all mice (mean 6.2-log<sub>10</sub> CFU/g for 7 days). Oral administration of LGG suppressed growth of all enterococci, including the vancomycin-resistant strain in treatment group feces (P<0.05).

**Conclusions:** This study demonstrated a significant reduction in the detection of VRE in fecal specimens of mice receiving probiotic and concluded that probiotic can reduce colonization of VRE. We suggest more studies on effect of probiotics in prevention and treatment of VRE and other common pathogens infection.

**Keywords:** *Enterococcus faecalis*; *Lactobacillus rhamnosus* GG; Probiotic