Introduction

The intestinal microbiota is a highly complex community of microorganisms that have a symbiotic relation with the host. The intestinal immune system has evolved together with it to protect the host while permitting the presence and benefits of the resident bacteria. The immune response can differ from individual to individual, and even microbiota itself is conditioned by the intestinal environment. Therefore, microbiota should be taken into account in studies with animals since it is a notable variable.

Objectives

• To determine if there are different changes in the intestinal microbiota of rats from three providers with different microbiota after inoculation with Salmonella Typhimurium LT2.
• To compare the microbiota of the ileum to that of the caecum and proximal colon.
• To compare the microbiota between providers in control animals.

Materials and methods

• 18 male SPF Sprague-Dawley rats.
• Providers A, B and C.
• 1 ml of S. Typhimurium (10^8 CFU/ml) to treated groups, SSF to control groups.

Results

Comparison between providers

• Provider B: the only that harboured Bifidobacterium spp. with adherence to epithelium (ileum and caecum), but the provider with less percentages of Verrucomicrobia (caecum).
• All providers: more adherence of Clostridium cluster XIV in the caecum than in the ileum.
• Provider A: significantly more Clostridium cluster XIV than provider C (caecum).

Comparison between non-treated and S. treated animals

• Provider B: higher percentage of Bifidobacterium spp. in treated rats (ileum and caecum).
• Provider C: higher percentage of Enterobacteriaceae in control rats (ileum and caecum), but more adherence in treated rats (ileum).
• Providers A and B: more adherence of Lactobacillus/Enterococcus in control rats (ileum and colom).
• Provider C: more adherence of Lactobacillus/Enterococcus in treated rats (ileum and colom).
• All providers: more adherence of Clostridium cluster XIV in treated rats (colon).

Conclusions

• Differences in diversity and types of bacteria between ileum and caecum or proximal colon.
• Microbiota of providers A, B and C is similar within the same provider and differs among them.
• There seems to be a positive correlation between the bacteria found in the lumen and those attached to the intestinal epithelium.
• Microbiota from each provider reacted in different ways to the infection with Salmonella enterica serovar Typhimurium.
• The provider with less diversity of microbiota is C.
• It is necessary to take into account the microbiota of experimentation animals.