

MECHANISM OF IMMUNITY AGAINST
Campylobacter jejuni **IN MICE**

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ABSTRACT

The roles of B-lymphocytes, T-lymphocytes and macrophages in the mechanism of immunity against *Campylobacter jejuni* in mice were investigated. This was done in an attempt to proffer solution to the problem of diarrhea through the enhancement of the immune mechanism involved in the protection against this agent.

The roles of B-lymphocytes, T-lymphocytes and macrophages were investigated by injecting different sets of mice with carrageenan, anti-C-jejuni serum, and anti-thymocytic serum obtained from rabbit respectively after being injected with 1 ml of *C-jejuni* cell suspension containing approximately 4.6×10^4 cells were sacrificed at one-day, three-day, five-day, and seven-day intervals. The liver and the spleen were removed, homogenized, serially diluted, plated and incubated for bacterial cell count. The data collected were subjected to statistical analysis using student's t-test.

The result showed that higher bacterial populations were found in the organs (liver and spleen) of the carrageenan-treated mice than in the control mice within the

first twenty four hours post infection. Since this substance was toxic, the high bacterial population organs indicated that the macrophages were rendered inactive. However, a fall in the bacterial population later in the course of infection was observed. In the liver of the mice that were given anti-thymocytic serum, the activity of the T-lymphocytes was hindered till seventy two hour post infection as shown by high bacterial count in this organ. Thereafter, there was a decrease in bacterial population which implied that the T-lymphocytes had become more active in fighting the bacteria as a result of the loss of inhibitory potency by the anti-thymocytic serum. In the spleen of experimental set of mice, the bacterial count remained lower than in the control ($t=0.000$, $p=1.000$, $P>0.05$) mice throughout the period of the experiment. In the passively immunized mice, growth patterns in both the liver and the spleen were similar to those of control within the first twenty four hours post infection ($t = 632$, $P= 561$ $P> 0.005$) In the liver, an increase in bacterial population was observed after twenty four hours ($t = 2.828$, $P =.047$, $P<0.05$) while in the spleen, there was an increase in bacterial count Followed by a decrease in population ($t= 5.330$, $p = 0.06$ $p<0.05$). The result showed that at some stages in the course of infection, there existed significant difference ($P<0.05$) in the means of

the bacterial populations in the liver and the spleen.

The study concluded that macrophages, T-lymphocyte and antibody complemented one another in effecting immunity to this diarrhea-causing pathogen in the mice. This implied that the immune mechanisms involved were both cellular and humoral.