ABSTRACT

Gastroenteritis is still an important public health problem in developing countries and *Escherichia coli* are frequent agents of diarrhea. Brazilian adults present antibodies reactive with the principal virulence factors of enteropathogenic *E. coli* (EPEC), which have many genetic and antigenic similarities with enterohemorrhagic *E. coli* (EHEC), that may be responsible for complications following diarrhea, as haemolytic uremic syndrome (HUS) and hemorrhagic colitis (HC). Both bacteria present a common pathogenic mechanism, with the formation of “attaching and effacing” lesion in microvilis’ enterocytes, mediated by virulence factors codified by the pathogenicity island LEE, as Intimin, Tir e Esp. Lipopolysaccharides (LPS) are components of outer membrane and important virulence factors of Gram-negative bacteria including *E. coli*. The infection with EHEC O157 results in the production of serum antibodies to the O157 LPS antigens, and usually they are indicators of recent infection. In this work we investigated IgG and IgM serum antibodies reactive with EHEC O157:H7, EHEC O111:H- and EPEC O111:H- antigens in healthy Brazilian adults, living in São Paulo. Serum samples were collected from 200 healthy adults (blood donors) and a pool was formed with 100 samples. The antibody levels were determined by ELISA for 100 individual serum samples by means of a whole cell ELISA with the three bacteria and an anti-LPS ELISA for the determination of the concentrations of specific antibodies anti-LPS O111 and O157, using the serum pool as control, in relation to the total IgG and IgM concentrations determined simultaneously. The results were submitted to statistical analysis. The repertoire of IgG and IgM antibodies to the three bacteria was investigated by immunoblotting (IB). The presence of anti-bacterial and anti-LPS seric antibodies was confirmed. There is a positive correlation between the titers of antibodies reactive with the three bacteria and between anti-bacteria and anti-LPS antibodies. The concentrations of IgM anti-LPSs were significantly higher than IgG, which is in accordance with the immune mechanism expected to a thymus-independent antigen. Surprisingly the concentrations of anti-LPS O157 were high taking into account the low frequency of O157 bacteria isolation in our country. The IB assays showed the presence of antibodies, mainly IgG, reactive with many antigenic bands suggestive of virulence factors. The origin of anti-EHEC antibodies in our population could be the contact with microbiota or environment bacteria, and animal or human *E. coli* strains, pathogenic or not. Alternatively, our people may be exposed to EHEC more frequently than previously thought.