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Effects of *Salmonella enterica* ser. Typhimurium LPS on spontaneous and acetylcholine-stimulated gut contractions *ex vivo*

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This study evaluated the effects of *S.* Typhimurium lipopolysaccharides (LPS) on spontaneous and acetylcholine-stimulated contractions of isolated intestinal muscle strips. The GI tracts of 16 adult mice were harvested at sacrifice; two muscles strips (5mm x 5mm each) were excised from duodenum, jejunum and ileum and were randomly allocated to LPS group (SL 1181, Sigma-Aldrich; 0.5 µg/1 ml of Tyrode solution) and a control group (Tyrode solution alone). The strips were equilibrated for 60 min in gassed (95%O_2/5%CO_2) Tyrode (with or without LPS). Following equilibration, the spontaneous contractile activity was recorded for 60 minutes, subsequent to which a cumulative dose response (DR) to acetylcholine (Ach, $1x10^{-8}$ to $4x10^{-6}$ M) was administered for stimulated activity. At the completion of DR, Tyrode solution was changed and the muscle strips were recorded for an additional 60 min (observing the same group treatment as prior to DR). The recordings were undertaken with PowerLab with MLT0202 transducers, ML221 amplifiers (all by ADInstrument, UK). The effects of LPS were evaluated with repeated measures ANOVA with time (prior *vs*. after DR), group (LPS *vs.* control) and animal as independent variables. The effects of LPS on maximum amplitude of ACh-stimulated contractions were evaluated with univariate ANOVA with group (LPS *vs.* control) and animal as independent variables. The frequencies of spontaneous duodenal, jejunal and ileal contractions were not affected by the tested variables. The amplitude of duodenal spontaneous contractions was increased by LPS (1.07 vs. 1.35 g/g wet tissue for control and LPS group, respectively; $P = 0.027$). The responses to ACh of both duodenal and jejunal strips treated with LPS were greater ($P = 0.011$ and $P = 0.046$) than the controls. In conclusion, results suggest that a residual luminal presence of LPS from *S.* Typhimurium may affect motility of the small intestine.