THE IN VITRO EFFECTS OF N-3 FATTY ACIDS ON IMMUNE RESPONSE REGULATION OF BOVINE *EX VIVO* ENDOMETRIAL EXPLANTS

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OBJECTIVES

To investigate the immunological effects, by measuring inflammatory cytokines, of different polyunsaturated fatty acids (OMEGA 3) such as docosahexaenoic acid (DHA), eicosapentaenoic acid (EPA) and linolenic acid (LNA) in bovine endometrial explants challenged or not with lipopolysaccharide (LPS).

MATERIAL AND METHODS

- Genital tracts of Angus heifers (n=5) not pregnant (no evidence of genital disease);
- Total of 26 endometrial explants/animal;
- First explants treatment (OMEGA 3): EPA, DHA, LNA (24hs);
- Second explants treatment (OMEGA 3 + LPS): EPA + LPS, DHA +LPS, LNA + LPS (24hs)
- OMEGA 3 concentrations tested in both treatments: 50µM, 100µM, 200µM and 400µM;
- Measured cytokines: IL-1β and IL-6 (ELISA).

RESULTS

- Groups: EPA, DHA and LNA (without LPS): no significant difference (P>0.05);
- EPA + LPS group: decreased in L-1β (dose dependent) and IL-6 accumulation (P < 0.05);
- DHA + LPS group: decreased in L-1β and IL-6 accumulation (both dose dependent) (P < 0.05);
- LNA + LPS group: decreased in L-1β and IL-6 accumulation (both only after 400µM of LNA) (P < 0.05).

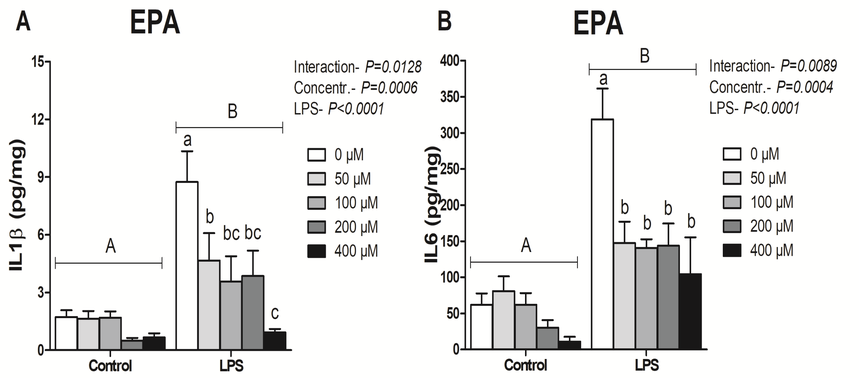


Figure 1. Effect of EPA treated or not with LPS on bovine endometrial explants.

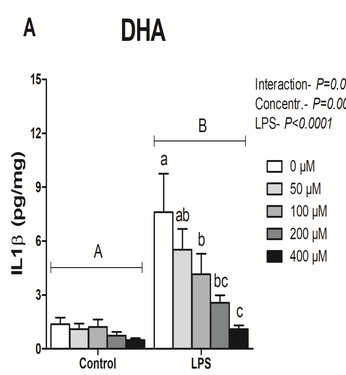
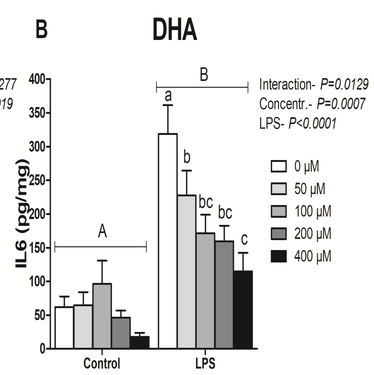


Figure 2. Effect of DHA treated or not with LPS on bovine endometrial explants.



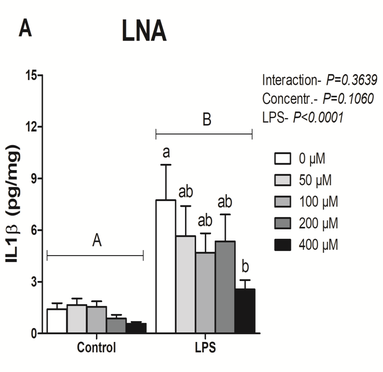
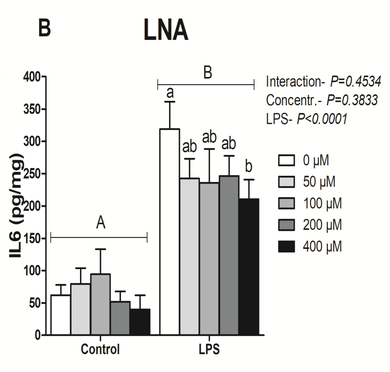


Figure 3. Effect of lLNA treated or not with LPS on bovine endometrial explants.



CONCLUSION

EPA, DHA and LNA n-3 fatty acids alter the immune response by inducing a satisfactory anti-inflammatory reaction when challenged with LPS in bovine endometrial explants;

A greater efficiency was observed for EPA and DHA acids, as they generated an anti-inflammatory immune effect at low concentrations when compared to LNA.

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