

**USE OF LIPOPOLYSACCHARIDE (*E. coli*) AS STRESS INDUCING IN SHEEP IN  
INTERMEDIATE STAGE OF PREGNANCY**

**USO DE LIPOLISSACARÍDEO (*E. coli*) COMO INDUTOR DE ESTRESSE EM OVINOS NA FASE  
INTERMEDIÁRIA DA GESTAÇÃO**

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To analyze stress during the intermediate stage of gestation, 43 multiparous, crossbred Santa Inês, pregnant ewes, with a average age of 5 and average body weight (BW) of 60kg, were challenged with a intravenous administration of 0.8µg.kg<sup>-1</sup> of LPS (lipopolysaccharide *E. coli* - outer membrane cell of gram-negative bacteria), diluted in physiological saline solution - simulating an immune stressor. The females were placed in individual cages at feedlot, with adaptation period of 5 days before the begin of sampling, with free access to good water quality, shade and food in the trough (corn silage and mineral supplementation). The ewes were divided into three groups, with a completely randomized design (CRD): CG - control group, with 15 animals that were not subjected to stress; IG - intermediate group stage, with 14 animals undergoing stress at 70 days of gestation; FG - final group, made up of 14 animals undergoing stress at 120 days of gestation. The variables used to investigate stress were measured during the intermediate stages of pregnancy in a 24 hour sampling, with this was possible to observe the change in rectal temperature (RT) and blood levels of cortisol by its circadian rhythm. Shortly after the baseline sampling, the treatment corresponding to the intermediate stage of gestation was submitted to stress, with the sampling interval of one hour each, from the first to the third samplings and after it the samplings was taken from two to two hours till the end of 24h sampling. At the same time, a dose of placebo was administered in the animals that didn't receive LPS, equalizing the effect of the invasive needle. The study was approved by Ethics Committee of FZEA/USP (13.1.2109.74.8). Variance analysis was performed with multiple comparisons of means by Tukey test with 5%. Significant difference in RT between IG and the other treatments at 07:00 h, 09:00 h, 11:00 h, 23:00 h, 01:00 h, 03:00 h and 05:00 h were observed, with no difference (P>0.05) between CG and FG in those times. As cortisol levels during the circadian rhythm, the figures for IG were higher than the CG and FG to 06:00 h, 07:00 h, 09:00 h, 11:00 h, 13:00 h, 15:00 h, 01:00 h and 03:00 h. No significant differences (P>0.05) were observed between CG and FG in any of the crops of cortisol. The highest RT for IG was observed at 21:00 h, with a range of 1.26°C basal RT, but there was no significant difference within treatments at 9:00, a time that had the highest the amount of cortisol. As the values of RT the three treatments differed at 9:00 h, where it was found the highest value of serum cortisol in time for IG, with a difference of basal crop of 12.4225 µg d/L (P<0.05). The use of LPS to induce stress in sheep at the intermediate stage of pregnancy promotes interference in the values of rectal temperature and blood cortisol levels when measured during the circadian rhythm.

Keywords: circadian rhythm, cortisol, LPS.

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