**The effects of heat stress on the abundance of proteins involved in chemical biotransformation in the corpora lutea of post-pubertal gilts.**

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Heat stress (HS) is an environmental stressor that modulates physiological changes that impact target organs. Seasonal infertility in pigs is associated with HS, manifested as smaller litters, delayed puberty onset, increased abortion, reduced conception rate, and a longer wean-to-estrus interval. Chemical biotransformation enzymes transform parent products into metabolites with lesser or greater toxicity. Since HS causes hyperinsulinemia, and insulin regulates chemical biotransformation, this study investigated the abundance of proteins involved in chemical biotransformation in the corpus luteum (CL). Crossbred post-pubertal gilts were exposed to thermal neutral (TN, 20 ± 1 °C, n=7) or cyclical HS (35 ± 1 °C for 12 h and 31.6 °C for 12 h, n=7) conditions from 2 to 12 d post-estrus. The ovarian abundance of proteins involved in chemical metabolism, glutathione *S*-transferase Pi (GSTP1), microsomal epoxide hydrolase 1 (EPHX1), cytochrome P450 2E1 (CYP2E1), and ATP binding cassette subfamily B member 1 (ABCB1), were quantified via western blotting. Statistical analyses were performed using GraphPad Prism 8.4.1 software using unpaired t-tests without adjustment. The CL abundance of EPHX1, CYP2E1, and ABCB1 were not altered ($P > 0.05$) by HS, however, the abundance of GSTP1 was increased ($P < 0.05$) by HS. GSTP1 functions in several mechanisms including chemical biotransformation, oxidative stress response, and apoptosis regulation, thus increased luteal GSTP1 due to HS may be a protective mechanism to preserve CL function. This project was supported by the Iowa Pork Producers Association.