SUPEROXIDE DISMUTASE (SOD) ACTIVITY AND CELLULAR PRION PROTEIN (PRP^C) EXPRESSION IN RABBIT AORTIC SMOOTH MUSCLE CELLS (RASM) UNDER ENDOPLASMIC RETICULUM STRESS (ERS)

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Several studies described association between PrP^C and SOD antioxidant activity. However, the cellular processes governing PrP^C physiology remain unclear. Our hypothesis is that the alterations in PrP^C expression are related to SOD down regulation. Western blotting and RT-PCR analysis were used to determine whether PrP^C expression is altered in the presence of ERS, in this context, SOD activity was determined through inhibition of cytochrome-C reduction. RASM were challenged, for different periods (4, 8 and 18h), with ERS inducers Angiotensin II (AII, 100nM), Tunicamycin (Tn, 5μg/mL) and 7-ketocholesterol (7KC, 5 μg/mL). Baseline SOD activity was 13.9±1.2 units/mg protein. ERS led to significant decrease in SOD activity after incubation for 4h with Tn and 7KC (28%), 8h with Tn (35%) and 18h with AII and 7KC (32%), and an increase in SOD activity by AII (42%) for 8h. Western and RT-PCR analysis showed no consistent change in PrP^C expression. PrP^C contributed to SOD activities and may regulate some aspect of copper metabolism, our data show that this is not linked to a higher expression of the PrP^C, and confirmed the hypothesis that its depends on Cu incorporation by the enzyme (Brown and Besinger, Biochem. J. 1998). Key words: Prion protein, endoplasmic reticulum stress, superoxide dismutase.