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Effect of lansoprazole on human sperm motility, sperm viability, seminal nitric oxide production, and seminal calcium chelation

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Abstract: Lansoprazole is a proton-pump inhibitor that is commonly used to treat many gastric illnesses. However, little is known about its effect on sperm function. Here, we investigated the in vitro effect of LP on human sperm motility, viability, nitric oxide (NO) production, and the ability of LP to chelate seminal calcium. Seventy-two semen samples from normozoospermic men were tested in this study. The effects of LP at 0.375, 0.75, 1.5, and 3 ?g/mL on sperm motility and viability as well as at 3 ?g/mL on NO production and calcium chelation in semen were assessed. Lansoprazole at 3 ?g/mL significantly decreased total and progressive sperm motility ($P = 0.0021$, $P = 0.0256$, respectively), but not sperm viability ($P = 0.8763$). In addition, semen samples supplemented with 3 ?g/mL LP had insignificant changes ($P = 0.9085$) in nitrite concentrations. Moreover, LP exhibited a significant ($P < 0.0001$) calcium chelation effect in semen. In conclusion, LP reduced sperm motility, but not viability. The reduction in sperm motility may be due to the calcium chelating effect of LP and/or decreased Na+/K+-ATPase activity, but not an alteration in NO production. Besides, none of the tested parameters was found to be correlated with male age.