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The Parthenogenetic Activation of Canine Oocytes with Ca-EDTA by Various Culture Periods and Concentrations

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In the present study, canine oocytes were exposed to various concentrations of and durations of exposure to EDTA saturated with Ca^{2+}(Ca-EDTA), a cell membrane-impermeable metal ion chelator, to determine if parthenogenetic activation could be induced. When oocytes were cultured 48 or 72 h in parthenogenetic activation medium (PAM) without Ca-EDTA (control) or PAM supplemented with 1 mM, 5 mM Ca-EDTA, the highest rate of pronuclear formation was obtained in oocytes cultured in 1 mM Ca-EDTA for 48 h (8.0%; $p<0.05$). There was no pronuclear formation in the control group (PAM without Ca-EDTA). Oocytes treated with 5 mM Ca-EDTA for 48 h or 1 mM Ca-EDTA for 72 h formed a parthenogenetic pronucleus (3.1 and 4.5%, respectively). However, there was no pronuclear formation in oocytes treated with 5 mM Ca-EDTA for 72 h. In summary, exposure to Ca-EDTA can induce pronuclear formation in canine oocytes.

Key words) *Ca-EDTA, parthenogenesis, Canine oocyte, Metaphase II, pronucleus*