147-LIPS

Povidone Iodine Effects on Chicken Embryonic Development

Abstract:

Povidone Iodine (PVP-I) reduces the chance of infection before any surgery such as a cesarean delivery. It is used to disinfect the injuries. Povidone iodine precipitates bacteria and denaturing proteins in vivo, which kills germs directly. It is therefore effective for disinfecting and sterilizing surgery sites and tools. PVP-I can cause toxic effects such as hemolysis emesis, metabolic acidosis, vomiting, and cysts. We used the chicken embryo, which is a good model organism because seventy percent of human DNA is shared with chickens. The early developmental phases that all human and chicken embryos go through are quite similar. In this study, eighty fertilized eggs were divided into four groups, then were injected with 0.2 ml of PVP-I (diluted in PBS) at 0, 0.1, 0.01, and 0.001% concentration. The eggs were incubated for five days, then examined for viability. We did run this experiment twice. The numbers of viable eggs combined of both trials were 33, 28, 26, and 28 respectively for control (0), 0.1, 0.01, and 0.001% of PVP-I. Compared to the control groups (0.1, 0.01, and 0.001), the iodine treatment resulted in a significantly lower number of viable eggs ($p < 0.05$). When the two trials are analyzed separately, no significant changes are observed. The viability of embryos can be affected by toxicity of PVP-I.