TRANSFER OF SINGLE DOSE OF INTRAVITREAL INJECTION OF RANIBIZUMAB AND BEVACIZUMAB INTO THE MILK OF SHEEP

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PURPOSE: To investigate whether single-dose intravitreal injections of bevacizumab and ranibizumab transfer into milk.

METHODS: This study included lactating 12 sheep and a single 3-month old suckling lamb of each sheep. Two groups consisting of 6 sheep and their lambs were constituted; the ranibizumab group and the bevacizumab group before the administration of intravitreal injections, blood and milk samples were obtained from all sheep and, following the injections, blood and milk samples of all sheep and blood samples of all lambs were collected at regular time points. Serum and milk concentrations of bevacizumab and ranibizumab were measured using an enzyme-linked immunosorbent assay (ELISA) kit. The limit of determination was 0.9 ng/ml for bevacizumab and 0.62 ng/ml for ranibizumab. RESULTS: At 6 hours after intravitreal injections, bevacizumab concentration was above the limit of determination in the blood of all sheep. At 3 weeks, when the study was terminated, bevacizumab concentrations were high in 4 sheep. Even though bevacizumab concentrations in milk showed fluctuations, the drug transferred into the milk of all sheep at detectable concentrations. Bevacizumab concentrations were at the ranibizumab group, drug concentrations in the blood and milk of sheep and those in the blood of lambs were below the limit of determination by the ELISA kit. CONCLUSIONS: This sheep model study demonstrated that intravitreal injection of ranibizumab, which did not transfer into the milk of sheep and suckling lambs, was safer than bevacizumab during lactation period.