Aborting Feedlot Heifers with Alfaprostol[1]

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Summary

The effectiveness of alfaprostol in inducing abortion was tested in 93 pregnant heifers. Alfaprostol was injected intramuscularly, .7 mg per 100 pounds body weight. Twenty-four heifers were injected when they averaged 83 days (range 64 to 86) pregnant, while 23 were injected when 138 days (range 119 to 143) pregnant. A control injection of the Alfaprostol carrier, propylene glycol, was given 23 heifers averaging 81 or 134 days pregnant. By 14 days after the Alfaprostol injection 79% of the heifers 83 days pregnant and 96% of the heifers 138 days pregnant had aborted. Two of the 83-day controls and none of the 138 day controls aborted.

Since Alfaprostol (5.4 mg) was very effective up to at least 140 days of pregnancy, but somewhat less effective earlier, the dosage may need to be increased for lighter or earlier pregnancy heifers. No serious side effects were noted in aborted heifers.

Introduction

Prostaglandins (Lutalyse®) are used routinely to abort incoming feedlot heifers, but they are less effective in the second trimester of pregnancy. Our trial was conducted to determine the effectiveness of Alfaprostol, a prostaglandin analog, in aborting feedlot heifers in the first and second trimester of pregnancy when injected at .7 mg per 100 pounds of body weight.

Procedure

Twenty-four heifers averaging 83 days pregnant and 23 heifers averaging 138 days pregnant were each weighed and given a single intramuscular injection of Alfaprostol at the rate of .7 mg per 100 pounds of body weight. The Alfaprostol was in a propylene glycol carrier at a concentration of 1.0 mg per cc of carrier. Twenty-three heifers averaging 81 days pregnant and 23 heifers averaging 134 days pregnant served as controls. Each control was weighed and received a single, intramuscular injection of only the propylene glycol carrier, .7 cc per 100 pounds of body weight. After injection, all heifers were observed twice daily for 28 days for signs of stress, abortion-related complications, and heat. All heifers were rectally palpated at 14 and 28 days after injection to determine if they had aborted.

[1]Alfaprostol is a prostaglandin analog from Hoffmann-LaRoche, Inc., who provided partial financial assistance for this trial. Alfaprostol is not currently cleared by the FDA for use in cattle.

Results and Discussion

At the dosage given, Alfaprostol was not as effective in inducing abortion at 83 days pregnant (79%) as it was at 138 days (96%) (Table 9.1). Heifers were heavier at the later stage of pregnancy and received a larger dosage (5.9 vs. 5.4 mg) of alfaprostol, which may explain the difference. In contrast, Lutalyse® is less effective later in pregnancy when using a constant dosage.

Table 9.1. Abortion Rate in Pregnant Heifers Treated with Alfaprostol

Treatment	Mg (cc's) injected	Avg. wt. (lbs)	Days pregnant	Number treated	Number aborted 14 days	Number aborted 28 days	% aborted
Alfaprostol	5.4 (5.4)	790	83	24	19	19	79
Control[a]	0 (5.4)	789	81	23	2	2	9
Alfaprostol	5.9 (5.9)	858	138	23	22	22	96
Control	0 (6.6)	974	134	23	0	0	0

[a]Controls were injected with propylene glycol, which was the carrier for the Alfaprostol

Thirty-five Alfaprostol treated heifers aborted within 6 days after injection. Fetal membranes were retained up to 10 days in both groups. Uterine discharge was noted up to 20 days after injection in heifers aborted at 138 days of pregnancy. Only two heifers showed any signs of distress after being aborted. Except those two, all came to the feed bunk at every feeding. Eighty-seven percent of the Alfaprostol-treated heifers that aborted exhibited heat within 14 days after injection. Some udder development was observed in 11 heifers aborted in the later group. Performance was reduced in the heifers aborted at 138 days of pregnancy (see page 89, this progress report.

Although Alfaprostol is not currently cleared for use, it appears to be a potentially successful abortifacient for feedlot heifers up to at least 140 days of pregnancy. However, adjustments may be needed in dosage, as it was more effective in the heavier heifers in the second trimester than on the lighter heifers in the first trimester.