

Evaluation of electro-stimulation for restraint during castration and castrating equipment in Hanwoo calves

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Purpose: To investigate the effects of electro-stimulation for restraint during castration and castrating equipment that Newberry castrating knife and Henderson castrating tool compare with habitual surgical castration method.

Materials and Methods: Total 35 Hanwoo calves(4-5months after birth, 120kg~180kg) were divided into two groups; Xylazine hydrochloride(0.05mg/kg) sedation, cut into the scrotum by surgical blade and silk ligature group(T1, n=15), electro-stimulation into the rectum, used Newberry castrating knife and Henderson castrating tool for preventing hemorrhage group(T2, n=20). Blood samples were collected from the jugular vein at before castration, shortly thereafter castration, 3hour, 24hour and 48hour after castration. Blood gases, glucose, lactate, HCO_3^- were determined with blood gas analyzer(GEM[®] Premire[™]3000, Instrumentation Lab, USA) within 1 hour after blood collection.

Results: Average surgery time in T1 and T2 were 278.9±44.8 and 130.4±34.6sec respectively ($p<0.001$). Lactate concentration was significantly increased at shortly thereafter castration in T1 than T2 ($p<0.001$). Glucose concentration was more increased in T1 than T2 at 3hour after castration. ($p<0.05$). pO_2 and pCO_2 was more higher in T1 than T2 at shortly thereafter castration and 3hour after castration respectively($p<0.05$).

Conclusion: The results suggest that electro-stimulation into the rectum was useful for restraint during castration because unnecessary injection of any anesthetic and decrease side effects. Castrating equipment like Newberry castrating knife and Henderson castrating tool was able to saving of operating time.

Key words: castration, electro-stimulation, Newberry castrating knife, Henderson castrating tool, Hanwoo calves.

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