

## **GAMBARAN KORTISOL DAN INTERLEUKIN 6 SAPI BALI JANTAN YANG DITRANSPORTASIKAN DARI KUPANG KE JAKARTA DENGAN KAPAL TERNAK SELAMA 108 JAM**

### **Intisari**

Transportasi berperan penting dalam pendistribusian sapi dari sentra produksi ke sentra konsumsi. Transportasi menggunakan kapal laut berpotensi menimbulkan stres yang berdampak pada kesehatan ternak. Stres mengakibatkan peningkatan sekresi hormon kortisol yang dapat mempengaruhi sekresi sitokin yang berkaitan dengan respon imun diantaranya interleukin 6 (IL-6). Penelitian ini bertujuan untuk mengetahui pengaruh transportasi sapi Bali jantan melalui laut menggunakan kapal ternak 750 DWT dari Kupang, Nusa Tenggara Timur (NTT) ke Jakarta selama 108 jam terhadap gambaran kortisol sebagai parameter tingkat stres. Penelitian ini menggunakan 5 ekor sapi Bali jantan berumur 2-3 tahun yang secara klinis sehat. Setiap hari semua ternak diberi pakan jerami kering dan air minum *ad libitum*. Pengambilan sampel darah melalui vena jugularis sapi dilakukan sebanyak 6 kali yaitu di Instalasi Karantina Hewan (IKH) Kupang, *loading*, *rest*, 14 jam transportasi, 38 jam transportasi, dan saat berakhirnya transportasi atau sandar (jam ke 108). Konsentrasi kortisol dan IL-6 dianalisis dengan metode ELISA. Hasil pemeriksaan diperoleh rerata konsentrasi hormon kortisol sapi adalah  $85,08 \pm 70,07$  ng/mL saat berada di IKH;  $109,70 \pm 121,62$  ng/mL saat *loading*;  $73,3 \pm 71,40$  ng/mL saat *rest*;  $139,13 \pm 120,38$  ng/mL pada jam ke 14;  $80,32 \pm 57,61$  ng/mL pada jam ke 38 serta  $56,14 \pm 55,6$  ng/mL pada jam ke 108 atau saat sandar. Rerata konsentrasi IL-6 adalah  $214,96 \pm 77,60$  pg/mL saat berada di IKH;  $342,27 \pm 103,18$  pg/mL saat *loading* serta  $603,33 \pm 559,72$  pg/mL saat *rest*;  $544,91 \pm 123,46$  pg/mL pada jam ke 14 transportasi;  $563,49 \pm 196,65$  pg/mL pada jam ke 38 transportasi serta  $312,49 \pm 91,94$  pg/mL pada saat sandar (jam ke 108 transportasi). Konsentrasi kortisol dan IL-6 pada masing-masing tahap transportasi tidak menunjukkan perbedaan yang nyata ( $p > 0,05$ ). Disimpulkan bahwa transportasi sapi Bali jantan menggunakan kapal ternak selama 108 jam tidak menimbulkan stres meskipun terdapat titik-titik kritis yang berpotensi menimbulkan stres yaitu pada saat *loading* dan 14 jam pertama transportasi laut.

**Kata Kunci** : Interleukin 6, kapal ternak, kortisol, sapi Bali jantan, stres, transportasi

## **PROFILES OF CORTISOL AND INTERLEUKIN 6 IN MALE BALI BEEF CATTLE TRANSPORTED BY CATTLE SHIP FROM KUPANG TO JAKARTA FOR 108 HOURS**

### **Abstract**

Transportation plays an important role in the distribution of cattle from production centers to consumption centers. Transportation using ships potentially cause stress that affects the health of cattle. Stress can increase cortisol hormone secretion that may affect the secretion of cytokines associated with the immune response, interleukin 6 (IL-6). The aim of this study is to determine the effect of cattle transportation in male Bali beef cattle across the sea using a 750 DWT cattle ship from Kupang, East Nusa Tenggara (NTT) to Jakarta for 108 hours towards cortisol concentration as a parameter of stress level. This study used 5 males Bali beef cattle ages 2-3 years that clinically health. Every day all cattle were fed dried straw and drinking water ad libitum. Blood sampling through jugular vein was done 6 times at Animal Quarantine Installation in Kupang; loading, rest, 14 hours of transportation, 38 hours of transportation, and at the end of transportation or at dock (108 hours). The concentrations of cortisol and IL-6 were analyzed by ELISA method. The results showed that the average concentrations of cortisol hormone was  $85,08 \pm 70,07$  ng/mL while in IKH;  $109,70 \pm 121,62$  ng/mL during loading;  $73,3 \pm 71,40$  ng/mL at rest;  $139,13 \pm 120,38$  ng/mL at 14 hours;  $80,32 \pm 57,61$  ng/mL at 38 hours and  $56,14 \pm 55,6$  ng/mL at 108 hours or when docked. The mean IL-6 concentrations was  $214,96 \pm 77,60$  pg/mL while in IKH;  $342,27 \pm 103,18$  pg/mL during loading and  $603,33 \pm 559,72$  pg/mL at rest;  $544,91 \pm 123,46$  pg/mL at 14 hours of transportation;  $563,49 \pm 196,65$  pg/mL at 38 hours of transportation and  $312,49 \pm 91,94$  pg/mL at the time of docking (108 hours of transportation). Concentrations of cortisol and IL-6 in each transport stage showed no significant difference ( $p > 0,05$ ). It was concluded that the transportation of male Bali beef cattle using cattle ship for 108 hours did not cause any stress even though there were critical points that could potentially cause stress at the time of loading and the first 14 hours of sea transportation.

**Keywords:** Interleukin 6, cattle ship, cortisol, male Bali beef cattle, stress, transportation