

INDICATORS OF STRESS IN SLAUGHTER CATTLE WITH SHORT AND LONG PRE-SLAUGHTER TRANSPORTATION

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It is quite common in Denmark to sell slaughter cattle through abattoir markets instead of shipping them directly from the farm to a slaughterhouse. Such practise may increase the stress level of the animals and subsequently enhance their disease susceptibility, thereby potentially decreasing food quality and safety. The objective of this study was to assess stress in slaughter cattle by serum concentration of haptoglobin, plasma cortisol level, differential counts of leukocytes, and hepatic lipid content.

Blood samples and hepatic tissues were collected on three different days from two groups of slaughter cattle (N = 200): one sold through an abattoir market (approximately 40 % of the animals) and one transported directly from the farm to the slaughterhouse.

The hepatic lipid content was assessed semi-quantitatively by measuring the buoyancy of liver slices in Cu₂SO₄ solutions with different specific gravities. Serum haptoglobin and plasma cortisol concentrations were determined in immunoassays. Differential counts of leukocytes were performed automatically.

The abattoir market animals had significantly higher odds of elevated serum haptoglobin concentrations (> 25 mg/ml) and elevated hepatic lipid content (≥10 % wet weight). They also had significantly higher cortisol levels, and the differential counts showed significantly more neutrophil granulocytes and fewer lymphocytes than in the animals that came directly from the farm.

It is quite common in Denmark to sell cattle through abattoir markets, which are permanent plants where slaughter cattle are traded. There are only few legislative guidelines regarding the abattoir markets, e.g. the conditions under which the cattle must be kept or the maximum period they may stay at the market. Cattle from various farms are brought together at these markets and will inevitably come into close contact with each other. Animals with unknown disease status therefore share the same facilities for hours or days with the potential risk of passing infectious material to each other. The present study demonstrates that cattle sold through an abattoir market show haematological and biochemical changes indicative of pathophysiological stress, i.e. increased blood concentrations of haptoglobin and cortisol, increased hepatic lipid content, neutrophilia and lymphopenia. The practice of selling slaughter cattle through abattoir markets may therefore not only influence their welfare, but also compromise their immune system thereby decreasing resistance to infections.