

Hypokalaemia as a cause for recumbency in cattle

Hypokalaemia is common in acutely unwell dairy cows, however, is usually mild and produces few clinical signs. Occasionally it is severe and this has been illustrated over the last few weeks when we have seen cows with very low serum potassium concentrations that have contributed to weakness, depression and recumbency.

Anorexia plays a major role in the development of hypokalaemia. Pasture is high in potassium with dietary intake exceeding requirements and the ruminant kidney readily eliminating the excess. Following anorexia, the renal response to a fall in potassium intake is relatively slow and excretion remains high. In an animal with diarrhoea or metabolic alkalosis further loss of potassium occurs, exacerbating the effect of decreased intake and high renal excretion.

Subtle clinical signs may develop when serum potassium falls below 3.0 mmol/L and these become more pronounced as concentrations drop below 2.5 mmol/L. Generalised weakness, CNS depression, decreased muscle tone, tachycardia, torticollis, recumbency and ileus may be seen. Clinical signs (other than tachycardia) are very similar to those seen in the hypocalcaemic cow. Some cows may develop significant rhabdomyolysis.

Hypokalaemia may remain undetected because of an artificial increase in serum potassium that occurs as the ion leaches from RBCs during clotting.

Consider checking serum $[K^+]$ in addition to a standard metabolic panel in recumbent cows if clinical features suggest something other than milk fever or hypomagnesaemia. Separating the serum from the RBCs before sending would reduce the chance of potassium leaching masking a hypokalaemia

