Changes in serum and exudate creatine phosphokinase concentrations as an indicator of deep tissue injury: a pilot study

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Abstract	Deep tissue injury (DTI) is difficult to detect in the early phase. Creatine phosphokinase (CPK) as a muscle enzyme could represent a promising indicator of DTI. However, serum CPK levels reflect the systemic condition rather than the local wound environment. Wound exudates can be indicative of the local wound environment. This study aimed to investigate the usefulness of CPK levels in wound exudates as an indicator of DTI. Rats were divided into control, 6 hours 10-kg and 6 hours 20-kg loading groups. Serum samples were obtained before wounding, and at 8 and 12 hours, and 1, 2 and 3 days after wounding, while exudate samples were obtained on days 2 and 3. Serum CPK levels were markedly increased in the 10-kg and 20-kg groups at 8 and 12 hours after loading compared with the baseline value and control group, but decreased to the normal level on day 1. In both loading groups, exudate CPK levels were high on day 2 and decreased on day 3. Muscle necrosis was more severe in the 20-kg group than in the 10-kg group by histological examination. This is the first study to indicate the potential of CPK in wound exudates as an indicator of DTI.
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