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Abstract

In the present study, we tested whether an electronic identification and body temperature monitor-ring technology presently applied in small experimental animals could be transferred for use in pigs.

Measurements in young pigs – subcutaneous position

Initially, the microchip transponders were tested in groups of 6-week-old pigs infected with different strains classical swine fever virus (CSFV) and in uninfected control pigs. In a pilot study, transponders were inserted subcutaneously at 6 different positions of the body of 5 pigs. The results showed that the position of the microchip transponder in the pig is highly critical with regard to temperature level and temperature consistency. Thus, the transponders positioned by the ear base provided the best correlation to rectal temperature (Fig. 1).

Fig.1. Position of microchip transponder by the ear base of young pig

To test the stability of the monitoring system in larger group of pigs, transponders were therefore inserted by the left ear base in a subsequent infection experiments with 30 pigs. Subcutaneous tissue temperatures obtained by the implantable transponders were compared with rectal temperatures, recorded by a conventional digital thermometer (Lohse, L.et al., 2010, Acta Vet Scand, 52, 29).

Generally, the microchip transponders measured a subcutaneous tissue temperature, which was about 1ºC lower than the rectal temperature. However, a simple linear relationship between the measures of the two methods was found.

In conclusion, the tested body monitoring system using subcutaneous implantation of transponders may represent a promising tool to obtain an approximate correlate of body temperatures in groups of pigs. In contrast, however, the tested system did not constitute a suitable tool to measure body temperatures of individual animals in the present pig infection experiment.

Measurements in adult pigs – subcutaneous or intramuscular position

The age and as such the body formation, e.g. thickness of skin fat etc, may influence the measurement. In addition, it may be speculated that transponders inserted deeply into skeletal musculature may provide a better correlation to rectal recordings as such a position is likely to be protected by the influence of the ambient temperature. Recently, we have therefore tested subcutaneous and intramuscular implantation, respectively, in adult pigs, measuring a relatively few numbers of pigs over time. Intramuscular position is superior to subcutaneous. Results will be presented.

Electronic equipment

Bio Medic Data System (BMDS) (Plexx, the Netherlands) and digital thermometer, (Kruuse, Denmark).