

### Calcitonin, parathyroid hormone and an unbalanced dietary phosphorus-calcium ratio in the pig

A. POINTILLART, L. GUÉGUEN <sup>(1)</sup> et J. M. GAREL <sup>(2)</sup>

<sup>(1)</sup> *Station de Recherches de Nutrition,  
I.N.R.A.-C.N.R.Z., 78350 Jouy-en-Josas (France)*

<sup>(2)</sup> *Laboratoire de Physiologie du Développement,  
Université Pierre-et-Marie-Curie, 9, quai St-Bernard, 75320 Paris Cedex 05*

Two experiments were carried out for 8 weeks with 8 growing pigs (20 kg) receiving either a rich phosphorus diet (1.20 per cent) or a low calcium diet (0.1 per cent) in order to study the effect of an unbalanced dietary phosphorus-calcium ratio on plasma levels of Ca, Mg, P, calcitonin (CT) and parathyroid hormone (PTH). The control diet given to the animals at the beginning of the experiment contained 0.6 per cent Ca and 0.6 per cent P.

During the first two weeks of rich P diet, plasma levels of Mg and CT increased and in the evening (7 hours after the meal) a decrease in calcemia appeared, which might be due to the morning hypercalcitoninism (3h after the meal). The low calcium diet caused a decrease in calcemia, more marked in the evening than in the morning. This fact might be correlated with the decrease in plasma CT rather than with a significant variation in the PTH level although a correlation was observed between Ca and PTH plasma levels, at least during the first 2 weeks of low Ca diet. Thereafter the plasma CT level rose simultaneously with the plasma Mg level, whereas that of calcium remained low. These first results suggest that CT plays an important role in the growing pig and that magnesemia might be a potent stimulator of CT secretion. Both diets studied did not lead to significant variations of the PTH level, but this might be due to the high Mg level of the diets used.

## VI. — HOUSING AND ENVIRONMENT

### Internal and superficial temperature variation and thermal comfort in new-born-piglets

P. BERBIGIER <sup>(1)</sup>, A. DUSSUEL <sup>(1)</sup> et J. LE DIVIDICH <sup>(2)</sup>

<sup>(1)</sup> *Station Centrale de Bioclimatologie,  
I.N.R.A., route de Saint-Cyr, 78000 Versailles (France)*

<sup>(2)</sup> *Station de Recherches sur l'Élevage des Porcs,  
I.N.R.A.-C.N.R.Z., 78350 Jouy-en-Josas (France)*

Two trials were achieved on 72 and 28 piglets, respectively, in order to study the factors of variation of rectal and cutaneous temperatures during the first hour of life.

The rectal temperature decreased at birth reached a minimum value: the lighter the piglet ( $P < 0.01$ ) or, the lower the initial body temperature ( $P < 0.01$ ), the lower the minimum value. After a sudden fall between birth and 10 minutes of age, the cutaneous temperature became stabilized and seemed to be independent of the previous factors. The magnitude of the rectal and cutaneous temperature fall was significantly reduced ( $P < 0.01$ ) when the animals were wiped dry.

The difference between the skin temperature and air temperature decreased when the latter increased and became stabilized when the air temperature ranged about 35-36 °C. The desired comfort temperature of the new-born piglet was estimated to be 35-36 °C.