Correlation Between Percentage of the Testicular Endocrine Component and Prepuber Male Temper

Vasile RUS¹, Flavia RUXANDA¹, Bianca BOȘCA², Cristian RAȚIU³, Adrian Florin GAL¹, George NADĂȘ¹, Viorel MICLĂUȘ^{1*}

¹ University of Agricultural Sciences and Veterinarian Medicine, Cluj-Napoca, Romania

² "Iuliu Hațieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

³ University of Oradea, Faculty of Medicine and Pharmacy, Oradea, Romania

Corresponding author: vmiclaus@usamvcluj.ro

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Abstract

The aim of this study is to assess the proportion between the two testicular components in rabbit, tomcat and pig. Testicles from rabbits, tomcats and pigs (2 week and 2 month old) were histologically processed and stained through Goldner's Trichrome method. In 2 week and 2 month old rabbits, the exocrine component is majoritary. In 2 week old tomcats the endocrine component is majoritary and in 2 month old ones, the exocrine component is majoritary. In 2 week and 2 month old pigs, the two components are almost equally represented. Great differences can be observed in the species taken into study, regarding the proportion of the two testicular components. The Leydig cell number seems to be in direct relationship with the temper of the male in the group.

Keywords: *endocrine component, pig, rabbit, testicle, tomcat.*

INTRODUCTION

There is no precise information in the specialty literature regarding the proportion between the endocrine and exocrine component in prepuber animals, as well as the evolution of the two components in the first months after birth. Numerous authors sustain that in human and mammal testicle, there are two generations of Leyding cells (Gondos *et al.* 1974; Christensen, 1975; Dumitru *et al.*, 1977; Gondos, 1977; Prince, 1984). One of them appears during the intrauterine life, while the other appears before puberty. Some authors sustain the fact that in the majority of mammal species, Leydig cells from the embryonic period disappear before or immediately after birth and that before puberty, the testicle repopulates with Leyding cells. The aim of this study is to establish the proportion between the two testicular components and its evolution in the first 2 months after birth in rabbit, tomcat and pig.

MATERIAL AND METHODS

Testicles from 8 rabbits (4 – 2 weeks old, 4 – 2 months old), 6 tomcats (3 – 2 weeks old, 3 – 2 months old) and 10 pigs (5 – 2 weeks old, 5 – 2 months old) were harvested. Samples were fixed in Stieve's solution, embedded in paraffin, sectioned at 5 μm thickness and stained with Goldner's trichrome method. We examined 5 slides from each animal using a light microscope (Olympus BX 41 with an Olympus E 330 digital camera) and photographed 5 microscopic fields/slide. On the obtained images, we measured the surface occupied by the two testicular components by using Adobe Photoshop CS 2, V. 9.0. The obtained values were statistically processed in Microsoft Excel (2003).

RESULTS AND DISCUSSION

In 2 week old rabbits (Fig. 1), the exocrine component is majoritary (98-99%), and Leydig endocrine cells are very rare and small (1-2%).

Fig. 1-6 – The proportion between endocrine and exocrine component in testicle (Goldner's Trichrome stain); **Fig. 1** – 2 week old rabbit; **Fig. 2** – 2 month old rabbit; **Fig. 3** – 2 week old tomcat; **Fig. 4** – 2 month old tomcat; **Fig. 5** – 2 week old pig; **Fig. 6** – 2 month old pig.

At the age of 2 months (Fig. 2), the exocrine component represents 95-97% and the endocrine one only 3-5%.

In 2 week old tomcats (Fig. 3), the exocrine component occupies 30-40% and the endocrine one 60-70%. At the age of 2 months (Fig. 4), the exocrine component occupies 90-95%, whereas the endocrine one only 5-10%.

In 2 week old pigs (Fig. 5), the two components are equally represented and at the age of 2 months (Fig. 6), the exocrine component occupies 45-50% and the endocrine one 50-55%.

Our results are similar to those described by Aldesberg (1955) and conflicting in comparison

with those presented by Dumintru *et al.* (1977), who sustain that the first generation of Leydig cells disappear rapidly after birth, and a second generation of cells appear around puberty. The great differences between the species taken into study, regarding the development of the endocrine component can be linked to the behaviour of these animals, as well as aggressiveness and group hierarchy.

CONCLUSIONS

Large differences are observed between the studied species regarding the representation of exocrine and endocrine components. It appears that there is a direct link between the percentage of the endocrine component and male temper.

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