Morphological, hormonal and histological modifications induce by immunisation against GnRH in stallions.

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This study was conducted to evaluate in 10 adult non breeding male horses the effects of immunisation against GnRH, using the porcine “vaccine” Improvac®, on scrotum, on biomarkers in urine and blood and on tissues in testis.

Ten stallions were injected intramuscularly with 1 mL anti-GnRH Improvac twice at 28 days apart. Blood and urine samples, measurement of total scrotal width (TSW) were done during 8 months. Plasmatic GnRH antibodies titres were measured by ELISA, 8 steroids profiling were performed on urine by gas chromatography coupled to tandem mass spectrometry. After surgical castration, histomorphometric analysis was done from testicles using Johnsen’s score.

TSW decreased significantly after 2nd injection in 9/10 horses. For those 9 horses, concentrations of the 8 steroids in urine began to decrease from 1st injection to reach very low values during all the study. Anti-GnRH antibodies were detected 2 weeks after 1st or 2nd injection with individual variation, their levels reached maximum value 2 months after 1st injection and became indictable at different times among the 9 horses, 2/9 had yet antibodies 8 months after 1st injection. In comparison with testicles from control horses, histological analyses of testicles of treated horses showed a significant atrophy with a variable germinal hypoplasia without sign of non-reversible lesions.

In this study, immunisation against GnRH induces in 9/10 horses dramatic modifications of scrotal morphology and steroidal secretion correlated with antibodies levels. However the intensity and the duration of effects show a large individual variability. Histological analyses suggest a reversible effect of this treatment. Further studies will evaluate which effects are induced by booster injections.