Introduction: Gamma-amino butyric acid (GABA) is the main inhibitory neurotransmitter in the central nervous system. Besides existence in the brain tissue, GABA is also found in nonneuronal tissues such as testis. There is evidence that GABA has a role in the release of testosterone. GABAergic system in the testis was also shown to have a negative effect on the spermatogonial stem cell proliferation.

Aim: Studies have shown that reproductive hormones are affected in patients with epilepsy. Based upon the knowledge that the changes in these hormones may result in infertility in epilepsy, the present study aimed to investigate the possible morphological and GABAergic system alterations in the testis tissue of genetic absence epilepsy rats from Strasbourg (GAERS).

Materials and methods: Adult male Wistar rats and GAERS were used in the present study. Animals were perfused with 4% paraformaldehyde and the testes tissue were routinely processed for paraffin embedding. The sections were stained with hematoxylin and eosin for morphological observation. Other sections were processed for GABA immunohistochemistry.

Results: Qualitative observations revealed that GAERS testis showed less sperm in the seminiferous tubules compared to the Wistar controls. GABA immunoreactivity was observed in the seminiferous tubules and interstitial areas of Wistar rats and GAERS.

Conclusion: Previous studies demonstrated the presence of GABA, glutamic acid decarboxylase (GAD) and GABA receptor subunits in the seminiferous tubules. Our results also demonstrated the presence of GABA in the testis tissue of both strains. We suggest that the alterations in GABAergic system in absence epileptic rats may also affect the gonadal system, resulting in decreased sperm production.