

 SEXUAL MEDICINE
**PDE5 INHIBITOR
 PROTECTS TESTES**

Isoniazid and streptomycin are drugs commonly used to treat tuberculosis (TB), but it has been suggested that both might impair testicular structure and function. New data from researchers in Turkey not only elucidate the toxic effects of these drugs on rat testes, but also suggest that phosphodiesterase type 5 (PDE5) inhibitors might provide protection against this toxicity.

Investigators compared the testicular tissue and semen from Sprague-Dawley rats treated with either isoniazid or streptomycin with those of control animals. The testicular toxicity of isoniazid had not previously been studied; here, researchers found that epididymal sperm parameters (motility, concentration, and morphological defects) were, in fact, similar between isoniazid-treated and control animals. The isoniazid group did, however, have lower Johnsen Testicular Biopsy Scores than the control group ($P < 0.0001$).

Similarly, although most semen parameters were similar, rats treated with streptomycin had a lower Johnsen Testicular Biopsy Score ($P < 0.0001$) and a higher rate of spermatozoon head defects ($P < 0.05$). The authors suggest that the 45-day treatment period was insufficient to catch the full spectrum of detrimental effects caused by anti-TB drugs, owing to the length of the spermatogenic cycle.

However, coadministration with sildenafil citrate—a PDE5 inhibitor routinely used to treat erectile dysfunction—reduced the toxic effects of isoniazid and streptomycin, suggesting a protective effect. Specifically, rats that received streptomycin and sildenafil citrate displayed significantly fewer sperm head defects than those administered with streptomycin alone ($P < 0.01$).

Perhaps most interestingly, sildenafil citrate alone was found to improve sperm motility and concentration compared to controls ($P < 0.05$). Furthermore, sildenafil treatment was associated with increased serum follicle-stimulating hormone, luteinizing hormone and testosterone concentrations. How sildenafil citrate might improve sperm quality and protect against anti-TB-drug-induced toxicity remains a mystery, but more studies—perhaps with a longer treatment period and other PDE5 inhibitors—are sure to follow.

Sarah Payton

Original article Alp, H. *et al.* Effects of sildenafil citrate, isoniazid, and streptomycin on testicular tissue and epididymal sperm quality in rats. *Urology* doi:10.1016/j.urolgy.2012.05.016