

Its main components include Radix Codonopsis, Radix Dipsaci, Polygoni Multiflori, Atractylodes macrocephala, Morinda officinalis, Eucommia Ulmoides, Semen Cuscutae and Radix Rehmanniae Praeparata. In recent years, the research on ZYP has been increased year by year. Previous studies have shown that ZYP combined with phloroglucinolis is significantly effective in the treatment of threatened abortion.

Methods: Pregnant rats (F0) were exposed to 6 g/kg, 12 g/kg and 24 g/kg body weight/d of ZYP by intragastric administration from gestation day 15 (GD₁₅) to through parturition and lactation up to weaning, i.e. post-natal day 21 (PND₂₁). Water and propylthiouracil (PTU, 15 mg/kg) were used as the negative control and positive control, respectively. The mating was done between the treatment (ZYP or PTU) group and negative control group when the F1 pups were born 63 days.

Results: The reproductive capacity of F0 and F1 generation decreased significantly after PTU exposure ($P < 0.05$); however, the body weight and reproductive ability of F0, the physical development and feed consumption of F1 as well as the reproductive ability and survival rate of F2 rats were not significantly changed in the ZYP group compared with the negative control group ($P > 0.05$).

Conclusion: There was no statistically significant evidence of perinatal toxicity under ZYP exposure.

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PP25.1

Betamethasone causes multigenerational reproductive impairment in male rats



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Introduction: Betamethasone (BM) is the drug of choice for the antenatal treatment in the promotion of lung maturation. Previous studies have reported that prenatal BM treatment reduces male sperm quality and can negatively impact the pituitary–adrenal axis in the second generation of treated rats.

Objective: Our objective was to evaluate the reproductive consequences of male rats whose fathers were exposed to BM during prenatal development.

Materials and methods: Pregnant Wistar rats ($n = 10$ /group) were separated into two groups: controls (vehicle) and BM-treated (0.1 mg/kg). Rats were treated on gestational days 12, 13, 18 and 19 via an intramuscular injection. One male pup from each mother was placed in individual cages and was mated at postnatal day (PND) 110 with non-treated females. Two males from each litter were analysed for body weight, anogenital distance at PND 1, and preputial separation (after PND30). On PND 45 and 110, one male was sacrificed and the body and reproductive organ weights, sex hormone levels, histopathology, and immunohistochemistry for Cx43 and PCNA was done. Another male was used to evaluate sexual behavior performance, accessory gland contractility and fertility.

Results: In the betamethasone group there was a significant reduction in body weight at PND 1 as well as a delay in the onset of puberty. On PND 45, paired testis, epididymis, vas deferens, and adrenal weights were increased. Despite the decreased weight of the seminal vesicles, the contractility of the tissue was increased with both norepinephrine and carbachol. Serum LH levels were increased while FSH levels were decreased. There was also a decrease in the Leydig cell volume. The number of morphologically normal sperm, their motility, and daily sperm production were all reduced. Rat sexual behavior was affected by treatment as they were unable to mount the females. Furthermore, male fertility, as determined by intrauterine insemination, was reduced in BM-treated rats. The histopathology of testis and epididymis as well as the immunostaining for Cx43 and PCNA in the testis were similar between groups.

Conclusions: Prenatal BM exposure leads to multigenerational long-term reproductive impairment in male rats. These results raise concern for humans, considering the use of BM in pregnant women.

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PP25.2

Effect of quality sperm and DNA damage by thallium exposure in mice mature sperm



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Introduction: The use of metals has contributed to cultural and technological developments. Thallium is released into the environment from industrial sources, production of electrical energy, cement plants and refining processes. The deposition of atmospheric thallium has contaminated surface soils, exposing humans to thallium via oral, dermal, and inhalation routes. Men are inevitably exposed to metals due to their ubiquity in nature. Several studies have been established an increased incidence in sperm quality alterations, and environmental and lifestyle factors are among the possible causes contributing to this deterioration.

Objective: We evaluated Thallium (Tl) effects on sperm quality and DNA damage in mature sperm in mice.

Materials and methods: Adult male mice were administered Tl (15 or 25 mg/kg bw/v.o./day/5 days) and euthanized 24 h post-treatment (hpt). Spermatozoa were obtained from cauda epididymis–vas deferens, and then evaluated for sperm quality and DNA damage by SCSA.

Results: Tl acute exposure caused a dose–response decrease in quality sperm, where sperm viability and motility showed decreases (85–72% and 75–60%, both doses) and morphology showed a slight increase (6–15%, both doses) after Tl exposure, compared to the controls. An increase in DFI% (fragmented DNA) showing values of 4- and 16-fold at doses of 15 and 25 mg/kg, respectively, compared to the controls.