

AB032. Development of new treatment modality for male infertility by using phytopharmaceuticals

Jong Kwan Park

Department of Urology, Chonbuk National University and Research Institute of Clinical Medicine of Chonbuk National University-Biomedical Research Institute and Clinical Trial Center of Medical Device of Chonbuk National University, Jeonju, Republic of Korea

Background: Reactive oxygen species (ROS) has very important role in male infertility area. Until now medication for treatment of male infertility is not produced. MOTILIPERM was prepared as a mixture of extracts of three medicinal herbs [roots of *Morinda officinalis* How (Rubiaceae), outer scales of *Allium cepa* L. (Liliaceae) and seeds of *Cuscuta chinensis* Lamark (Convolvulaceae)]. To investigate the role of ROS-based endoplasmic reticulum (ER) stress in a rat model of varicocele (VC), an animal model that was treated with cisplatin (CIS), adriamycin or 5 alpha reductase inhibitor (finasteride, FINA) and the therapeutic efficacy of MOTILIPERM in those infertile male rats, we have researched.

Methods: We evaluated the rat those were administered C or F and the rat were induced VC. We also evaluated the effect and adverse events of the MOTILIPERM in the rats. Male rats were divided into several groups such as a normal control group (CTR + vehicle), a control group administered MOTILIPERM 200 mg/kg (CTR + M 200), a VC-induced or FINA, CIS or adriamycin administered group (VC + vehicle or FINA + vehicle, CIS + vehicle or

adriamycin + vehicle) and VC-induced groups that was administered MOTILIPERM 100 (VC + M 100) or 200 (VC + M 200) mg/kg and administered with CIS, FINA or adriamycin plus MOTILIPERM 100 (CIS or FINA + M 100) or 200 (CIS or FINA + M 200) mg/kg. Testis weights were recorded and serums were assayed for hormone concentrations. Tissues were subjected to semen analysis, histopathology, analyses of ER response protein expression levels and oxidative stress was assessed by measuring ROS, reactive nitrogen species (RNS), malondialdehyde (MDA) level and ratios of total glutathione (GSH)/oxidized GSH (GSSG).

Results: MOTILIPERM treatment of VC-induced groups or the groups administered FINA, CIS, adriamycin significantly increased left testis weight, testosterone level, sperm motility, count and spermatogenic cell density. MOTILIPERM treatment also decreased MDA and ROS/RNS level but increased GSH/GSSG ratio.

Conclusions: This study suggests that ROS-related ER stress may plays a major role in VC-induced or FINA, CIS or adriamycin induced male infertility. MOTILIPERM, a novel compound targeting ROS-based ER stress, may be therapeutically useful in the VC induced infertility treatment and FINA, CIS or adriamycin induced male infertility as a supplement or herbal medication.

Keywords: Sperm; oxidative stress; endoplasmic reticulum (ER) stress; testosterone

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