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Review on Effects of Metosartan on Testes Tissue

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Abstract

Metosartan induces numerous deleterious effects in male Wistar rats treated with drug and RNase. It causes pre maturation of sperms and reduces the sperm count as well as reduces viable sperm count. It induces the x-chromosome desynapsis resulting in testicular carcinoma. The effects are so profound just in case of drug than compared to the enzyme RNase. Metosartan induces apoptosis in testicular tissue mainly through intrinsic pathway which is especially thanks to genotoxic agents. The drug mainly inhibits RNase A in rat testes and has positive effect on Mitosis.

Introduction

Metosartan is one among the antihypertensive drugs taken for study to assess reproductive potential in male rats. It mainly consists of two components metoprolol succinate and telmisartan which induces ds breaks in DNA. Metoprolyl known to affect sperm motility so, metosartan was taken to assess reproductive potential and to review drug interactions with DNA. The collapse of chromatin is observed during apoptosis which requires fragmentation of genome in the cells [1]. DNase digestion of chromatin leads to degradation of linker DNA leaving the nucleosomes. As RNA is also a component of chromatin along with DNA and protein, and RNase a treatment also causes disruption of chromatin [2]. Ion exchange chromatography is one of the column chromatographic techniques that aid in separation of proteins based on their charge. Cation exchange chromatography is used to separate cationic proteins and anion exchange chromatography to separate anionic proteins. NADPH regulates the reduced form of Cyt C Metosartan induced apoptosis in testes tissue treated in-vivo with the drug through oral gavage and also caused desynapsis of the x-chromosome in sperms resulting in genetic aberrations within the offspring [7]. Long term analysis of drug showed no histological aberrations within the testes tissue compared to in-vitro which caused the adenocarcinoma of the testes tissue. The reason may be due to direct exposure to the drug at higher concentrations. RNase caused apoptosis of the cells but the profound effect was seen in drug-treated rats compared to normal rats. Isolation of enzyme was done by DEAE and Carboxymethyl cellulose resins prepared in the laboratory using buffers. As DEAE cellulose exchanges the anions which result in separation of RNase of Testes and to elute first itself as it is a basic protein. MALDI-TOF mascot results showed expression of Cyt c and death protein-6 within the testes.

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Keywords

Metosartan; RNase A; Desynapsis; Netosis; Sperm count; Pre maturation; Apoptosis.

Effects of Metosartan in Testes

Metosartan induces double-stranded breaks in testicular DNA which are minimized by RNase A treatment to some extent. A. Histological examination in deep freeze condition and fresh examined tissue showed the development of yolk sac tumor in testis tissue whereas RNase treatment resulted in suppression of tumor compared to combined effect of both RNase A and metosartan because the drug reversibly inhibits metosartan through, both competitive and non-competitive inhibition.

Discussion and Conclusion

RNase A is found to be expressed in pancreas and secreted into digestive track to degrade the RNA present in the food. There are reports regarding protection of chromatin collapse by RNase H2. So, identification of RNase present in testes is a crucial thing as the drug intake disturbs chromatin integrity. Epididymis consists of RNase 10 which belongs to RNase A superfamily. So, experiments were conducted in our lab for isolation, identification and characterization of RNase present in testes. Rat testis RNase A is isolated by ion-exchange chromatography and further resolved by HPLC into two different Ribonucleases and MALDI- TOF MS was used for confirmation and to know the expression of proteins in the fraction separated by ion-exchange chromatography.

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