بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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The ameliorating effect of melatonin hormone on the nicotine - induced tissue damage in male rats

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APPROVAL SHEET

This is to certify that the dissertation presented by ***Aya Khalil Ali Hendawy*** to Cairo University for the Ph.D. degree in veterinary medical science (Physiology) has been approved by the examining committee held at 19/10/2020

The ameliorating effect of melatonin hormone on the nicotine - induced tissue damage in male rats

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Abstract

Nicotine is the main components of cigarette and is very harmful to human health. Melatonin, the hormone of the pineal gland, plays a principal role in maintenance of health and well-being of man and animals. The current study investigated the ameliorating effect of melatonin hormone on the nicotine induced tissue damage in male rats. For this purpose 75 male Sprague Dawley (SD) rats weighing 140-160g were randomly divided into five groups of 15 rats each: control group (1% ethanol in saline), nicotine group (0.6 mg/kg bwt) and nicotine plus melatonin groups (the same dose of nicotine plus 1, 5 or 10mg/kg bwt melatonin, respectively).Nicotine and melatonin were injected intraperitoneally daily for 21days. Fasting blood samples were collected from each rat at the 11 th day and one day after the end of last injection (22nd day). Whole blood samples were used for detection of CBC, sera were separated and part of sera was used immediately for determination of serum glucose level, another part of sera was stored at -20˚C for determination of (liver function tests, kidney function tests and lipids profile) and the another part of sera was stored at -80˚C for determination of TAC. Five rats were sacrified from each group at the 22nd day and samples from liver, kidney and heart were collected for estimation of MDA, SOD and GSH, samples from liver, lung and heart for determination of DNA fragmentation % and apoptosis expression and samples from liver, kidney, lung and heart for histopathological examination. The results revealed that nicotine increased CBC, activity of ALT, AST, creatinine, urea nitrogen concentrations and serum glucose level, total cholesterol, triglycerides, LDL and decreased ALP activity and HDL. In addition, it decreased TAC, SOD activity, GSH concentration and increased MDA concentration. Nicotine also increased DNA fragmentation % as well as apoptosis expression in all examined tissues. It also induced histopathological changes in all examined tissues. Melatonin could ameliorate the deleterious effect of nicotine on the previous parameters either partially or completely. It is concluded that melatonin has a protective effect on tissues against the harmful effect of nicotine.

Key Words: Nicotine, Melatonin, Tissue damage, Ameliorating effect, Male rats.

Dedication

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