الدور الوقائي لمستخلص القرفة على الأجسام الكهفية للفئران المصابة تجريبيا بالسكري

الطالب | وهيب سامي محمد عقاد
إشراف الدكتور | حامد عبد الروؤف محمد صالح

كلياً، الكبد هو من أهم الأسباب المؤدية إلى عدم القدرة على الانتصاب لدى الرجال وخاصة الذين يعانون من أعراض قصبية مثل ارتفاع ضغط الدم، زيادة الوزن، وتضخم الكلي. وتكون هذه العوامل تأثير على عملية الانتصاب. الأعصاب الحيوية لها دور مهم في عملية الانتصاب. السكري. الأجسام الكهفية هي عبارة عن نسيج مائي لتشملي الجسم الكهف. القرفة هو واحد من الأدوية العشبية الأكثر استخدامًا مع المكونات الحيوية الشائعة، والتي تعمل كمضادات للأكسدة، وتعمل على تقوية عمل الأنسولين، وهي مفيدة في التحكم في ارتفاع نسبة الهيموكلور ي في الدم.

الهدف من هذه الدراسة هو دراسة الدور الوقائي لمستخلص القرفة على الأجسام الكهفية للفئران المصابة تجريبيا بالسكري، وأيضاً حول الإجهاد التأكسدي والشكل الخارجي للجسم الكهف في نموذج تجريبي في الجرذان.

تم تقسيم 40 فأر ذكور بالغ (1:00:04:04) إلى 5 مجموعات (10 جرذان لكل منهما): 1) مجموعة التحكم: يحقنوا بمحلول ملحي عادي. 2) مجموعة القرفة: يحقنوا بمستخلص القرفة يوميًا بـ0.44 مغ/كغ. 3) مجموعة الستريزوتونسين: يحقنوا بمادة الستريزوتونسين يوميًا بـ0.44 مغ/كغ. 4) مجموعة مرضى السكري: يحقنوا بالمادة الستريزوتونسين يوميًا بـ0.44 مغ/كغ. 5) مجموعة السكري والقرفة: يحقنوا بالمادة الستريزوتونسين يوميًا بـ0.44 مغ/كغ، وأيضاً يحقنوا بمادة الستريزوتونسين يوميًا بـ0.44 مغ/كغ.

تمت تحليل النتائج والبيانات من خلال برنامج إس بي إس وتنفيذها. وظهرت النتائج أن الانتصاب يتأثر بالسمنة التي تنتج عنها عدم القدرة على الانتصاب. وأيضاً، أظهرت النتائج أن الانتصاب يتأثر بالسمنة التي تنتج عنها عدم القدرة على الانتصاب.
The Protective Role of Cinnamon Extract on the Structure of Corpora Cavernosa of Experimentally - Induced Diabetic Rats.

Student \ Waheeb Sami Mohammad Aggad  
Supervised by \ Dr. Hamid Abdulraof Saleh

**Background:** In clinical practice, diabetes mellitus (DM) was reported to be one of the most common causes of erectile dysfunction (ED) of men attending impotence clinics in nearly all countries as a threefold increased risk of erectile dysfunction was documented in diabetic men, as compared with nondiabetic men. Moreover, diabetic men may present several clinical conditions, including hypertension, overweight, metabolic syndrome and atherogenic dyslipidemia, which are risk factors for ED. DM-induced ED is associated with an increase in oxidative stress. Scavengers of reactive oxygen species (ROS) have been shown to reduce oxidative stress and aid in the management of diabetic ED. Penile erection is a complex physiological and hemodynamic process requiring intact arterial inflow to the corpora cavernosa, which are the main erectile tissue of the penis. Traditional herbs have been a revolutionary breakthrough in the management of ED and have become known world-wide treatment. Cinnamon is one of the most widely used herbal medicines with diverse bioactive constituents, which function as antioxidants, potentiating insulin action, and are beneficial in the control of glucose intolerance and DM.

**Objectives:** The aim of this thesis is to investigate the effect experimentally induced DM in rats on the distribution of smooth muscle cells and the main connective tissue components of the corpora cavernosa and to evaluate the ameliorative role of the cinnamon on the blood sugar level and oxidative stress and structural damage produced by DM.

**Materials and Methods:** Forty adult albino male rats (200-240 gm in weight) were randomly divided into 4 groups (10 rats each): I. **Control group:** received normal saline by oral gavage, II. **Cinnamon group:** received 200 mg/kg of cinnamon extract daily for 60 days by oral gavage, III. **Diabetic group:** subjected to induced DM by using Streptozotocin (STZ) 60 mg/Kg intraperitoneally, IV. **Diabetic and cinnamon group:** subjected to induced DM as above and given cinnamon extract as above. The rats of the four groups were sacrificed 60 days after the onset of the experimental DM where blood was taken via cardiac puncture to estimate glucose level and other oxidative stress markers. Also the penile tissue was obtained by a circular incision made to the corona with following removal of the shaft skin. Pieces of penile were cut both transeversely and longitudinally and immediately fixed in 10% neutral buffer formalin (NBF) for 48 hour. For the light microscopy, the fixed pieces were processed for the preparation of paraffin blocks, which were further cut into 5 um thickness sections. The sections were stained by Haematoxylin and Eosin stain (H & E) for general examination of general structure, Masson's Trichrome stain (MT) for examination of fibrous tissue and Oricein stain (Or) for examination of elastic fibers. Also, immunohistochemical study using the Avidin-Biotin technique was performed for identification of smooth muscle cells (SMC), using monoclonal anti-alpha-smooth muscle antibody. Slides prepared from all groups were examined and photographed under digital light microscope. The thickness of the tunica albuginea (TA),
distribution of smooth muscle cells (SMC) and volume density of elastic system fibers in tunica albuginea (TA) and corpora cavernosa (CC) were evaluated.

**Results:** The obtained data showed that there was a marked increased level of blood glucose and all oxidation/antioxidation markers in streptozotocin-induce diabetic rats. Also, histologically and immunohistochemically, many structural harmful effects were seen in the corpora cavernosa in the form of interruption of lamellar arrangement of collagen fibers in the inner layer of the TA with marked increase of the proportion of fibers to smooth muscles and decrease of the the amount of elastic fibers collagenous in the diabetic state. in the cavernosal trabeculae, implying erectile tissue fibrosis artery fibrosis, narrowing or collapse of subtunical vessels Also, there was cavernosal in DM. Cinnamon intake resulted in normalization of blood glucose level and other oxidation/antioxidation markers that were spoiled in induced diabetic rats. Also, cinnamon treatment was capable to reverse the histological and immuno-histological changes of the corpora cavernosa.

**Conclusion:** The results of this study revealed that cinnamon extract co-treatment is a good candidate to undo the corpora cavernosal damage that is considered to be the main cause of erectile dysfunction in diabetic patients.