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الملخص العربي

يعد التهاب القدم السكرى من أكثر وأصعب المشاكل الجراحية وذلك برغم الجهود المضنية لتوعية المرضى وتوفير الرعاية الصحية المناسبة لهم. فمرض السكر من الأمراض المزمنة التى تؤثر بمرور الوقت على مختلف الأنسجة والأجهزة بالجسم نتيجة عدم الاستخدام الأمثل للطاقة وتعرض الجسم باستمرار لارتفاع نسبة الجلوكوز فى الدم، تظهر الآثار الجانبية لمرض السكر تدريجياً ودون أن يشعر بها المريض. تعد القدم من أكثر الأماكن التى تتأثر سلباً بهذا المرض، فأكثر من 25% من هؤلاء المرضى سوف يعانون من مشاكل صحية مثل الالتهابات والتقرحات بالقدم.

أن الالتهاب المزمن للأعصاب الطرفية الإرادية واللاارادية، ولعدم الإحساس بالأطراف تدريجياً مع القصور فى الدورة الدموية الطرفية وتصلب الشرايين يعرض القدم لسهولة الالتهابات الشديدة والتى تؤدى فى أحيان كثيرة إلى بتر الطرف.

إن تأثر الجهاز المناعى للجسم لدى مريض السكر له بالغ الأثر فى حدوث الالتهابات الشديدة للطرف السفلى، فالخلايا الدفاعية لا تؤدى وظائفها على الوجه الأمثل، كما تتأثر الصفائح الدموية وتزداد المواد القابضة للأوعية الدموية الطرفية فى الدم مما يسهل حدوث وانتشار الالتهابات الشديدة وفشل العلاج الطبى والجراحى وبتر الأطراف.

هناك ثلاثة تغيرات مرضية تسبب التغيرات المرضية للقدم السكرى وهى: التهاب الأعصاب وقصور الدورة الدموية والعدوى. ولقد أظهرت الدراسات أن 40% من المرضى مصابون بالتهاب الأعصاب فقط و 25% مع قصور الدورة الدموية و 35% يعانون من التهاب الأعصاب وقصور الدورة الدموية.

من أهم الوسائل العلاجية لهذه الأمراض المزمنة هى الطرق الدفاعية فأغلب الدراسات تشير

إلى نتائج طبية نتيجة التوعية الصحية والأرشادية لهؤلاء المرضى وتقلص نسبه المشاكل الصحية المصاحبة لمرض السكر والبتير للأطراف السفلية.

وبالرغم من هذه المجهودات وسهولة حدوث الإصابة وضعف الجسم على المقاومة تحدث الالتهابات الشديدة فى بعض الأحيان والتي يوجب معها التدخل الجراحى والطبى، فيجب أن يكون المريض تحت الرعاية الصحية داخل المستشفى مع استخدام المضادات الحيوية واسعة الطيف فى البداية حتى الحصول على أنسب الأنواع مع نتيجة المزرعة من مكان الأصابة، يجب اكتشاف القصور الدموى فى الأطراف وعلاجه إذا تطلب الأمر التدخل الجراحى وذلك للحصول على أفضل النتائج، كذلك التدخل الجراحى الموضعى لتنظيف الجرح وإستئصال الأنسجة الميتة والغيار اليومى على الجرح.

وبالرغم من كل هذه الجهود فإن أكثر من 50% من حالات بتر الأطراف تكون لدى المصابون بمرض السكر وهذا أدى حديثاً إلى استخدام وسائل أخرى للعلاج لمساعدته هؤلاء المرضى ومنها منشطات الخلايا المناعية التى أعطت نتائج طبية فى هذا المجال.

وفى هذه الدراسة سنحاول إلقاء الضوء على استخدام الأساليب الحديثة لعلاج القدم السكرى ومحاولة تجنب البتر للطرف السفلى.

ENGLISH SUMMARY

The diabetic foot infection IS ONE of the most difficult surgical problems and despite strenuous efforts to educate patients and provide them with adequate health care. Diabetes one of the chronic diseases that have great affect on various tissues and organs in the body as a result of non-optimal use of energy and the body is exposed constantly to high glucose level in the blood, the side effects of diabetes gradually appear and without being felt by the patient. The foot is the most part of the body that adversely affected by the disease, and more than 25% of these patients will suffer from health problems such as infections and foot ulcers.

The chronic inflammation of the peripheral nerves voluntary and involuntary, with the loss of sensation gradually with ischemia in the peripheral circulation and atherosclerosis that will expose the foot to be easily infected which may lead to amputation.

The affected immune system in diabetic patient has a great impact on inflammation of the foot , defensive cells not functioning optimally, also affected platelets and vasoconstriction of peripheral blood vesseles which facilitates the occurrence and spread of inflammation and severe failure of

medical and surgical treatment and amputation of the affected foot.

There are three pathological changes that cause diabetic foot, namely: neuritis and ischemia and infection. Studies have shown that 40% of patients have neuritis only, and 25% with ischemia and 35% suffer from neuritis and ischemia.

Of the most important means for these chronic diseases are health care. Most studies indicate good results as a result of health education and counseling for these patients and reduce the percentage of health problems associated with diabetes and amputation of the lower limbs.

Despite these efforts and ease of incidence and poor body resistance severe inflammation occurs in some cases, which requires medical and surgical intervention, patient must be under care in the hospital starting immediately with the use of a wide spectrum antibiotics till get the most appropriate species with the result of the culture from injury, we should discover ischemia in lower limbs and treated it even if surgical intervention is necessary to get the best results, as well as local surgical intervention to clean the wound and eradicate dead tissue and daily dressing on the wound.

In spite of all these efforts, more than 50% of amputations cases are the people living with diabetes and this has recently led to the use of other means of treatment to help these patients, including immune cells, which gave good results in this area.

In this study, we will try to shed light on the use of modern methods for the treatment of diabetic foot and try to avoid amputation of the lower limbs.

Different Modalities in Management of Diabetic Foot Infection

Essay

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LIST OF ABBREVIATIONS

ABI	ankle/brachial index
AFO	Ankle Foot Orthoses.
Ang-1	Angiopoetin-1.
BASIL	Bypass versus Angioplasty in Severe Ischemia of the Leg.
BMSCs	bone marrow stem cells
1CPT	Carboxyterminal telopeptide of type 1 collagen
CROW	Charcot Restraint Orthotic Walkers.
CLI	Critical limb ischaemia
C.T	Computerized Tomography.
DCCT	Diabetes Control and Complications Trial.
DFUs	Diabetic foot ulcers.
ECM	Extracellular matrix.
EGF	Epidermal growth factor.
EGFR	Epidermal growth factor Receptor.
eNOS	Endothelial Nitric Oxide Synthase.
EPCs	Endothelial Progenitor Cells.
FDA	Food and Drug Administration.
FGF	Fibroblast Growth Factor.
HBO	Hyperbaric Oxygen Therapy.
GCSF	Granulocyte-Colony Stimulating Factor
HSE	Human skin equivalent.
IDDM	Insulin Dependent Diabetes Mellitus
IDSA	The Infectious Disease Society Of America.
IL	interleukin
ITCC	Instant Total Contact Cast
IWGDF	International Working Group on the Diabetic Foot
LEA	Lower Extremity Amputations.
LJM	Limited Joint Mobility.

LOPS	Loss Of Protective Sensation.
MDT	Maggot Debridement Therapy
MMPs	Matrix Metallo Proteinases.
MTPJ	Metatarso–Phalangeal Joint
MRA	Magnetic Resonance Angiography.
MRSA	methicillin-resistant S aureus
MRI	Magnetic Resonance Imaging.
MSC	Multipotent Stem Cells.
NADPH	Nicotinamide Adenine Dinucleotide Phosphate-H
NIDDM	Non–Insulin Dependent Diabetes Mellitus
NO	Nitric Oxide.
EPCs	Endothelial progenitor cells
NPWT	Negative pressure wound therapy
P1CP	Procollagen Carboxyterminal Propeptide.
PAD	Peripheral Arterial Disease.
PDGF–BB	Platelet Derived Growth Factor BB.
PECAM–1/CD31	Platelet Endothelial Cell-Adhesion Molecule-1.
PEDIS	P (perfusion), E (extent/size), D (depth of tissue loss), I (infection) and S (sensation).
PET	Positive Emission Tomography.
PTA	Balloon angioplasty
PTB	Patellar Tendon–Bearing Brace.
PTIs	Pressure–Time Integrals.
PBUH	Peace Be Upon Him
PVR	Pulse Volume Recordings.
RCT	Randomized Controlled Trial.
RCWs	Removable Cast Walkers
SC	Stem Cells.
SDF–1α	Stromal Cell–Derived Factor–1 α .
SPP	Skin Perfusion Pressure.
TASC	TransAtlantic Inter Society Consensus
Tc–99 HMPAO	Technetium-99hexamethylpropylene-amineoxime.