بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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يجب أن

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لم ترد بالأصـــل

Cutaneous Scars: management and implication of plasma transforming growth factor β_1 in their etiopathogenesis

Thesis

Submitted to the Faculty of Medicine, Tanta University in partial fulfillment for the requirement of the M.D. degree

In

Dermatology and Venereology

By

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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِيمِ

نَرْفَعُ دَرَجَاتٍ مَّنْ نَّشَاءُ وَفَوْقَ كُلِّ ذِي عِلْمٍ عَلِيمٌ

صدق الله العظيم

سورة يوسف (٧٦)

الندبات الجلدية: طرق العلاج و دور عامل النمو التحولى (بيتا –١) في منشأهـــا

المقدمة: لا يزال كيفية حدوث الجدرات و الندبات المتضخمة من الألغاز على الرغم من تورط الكثير من العوامل باثولوجياً ولكنها لم تبين كيفية حدوث هذه الندبات . و من أهم هذه العوامل عامل النمو التحولي بيتا و خاص عامل النمو التحولي بيتا-١ ويلعب عامل النمو التحولي بيتا-١ دوراً هاماً في تكوين الجدرات و الندبات المتضخمة وعلى الرغم من وجود العديد من الأبحاث التي نشرت عن طرق معالجة الندبات إلا انه حتى الآن لا يوجد بروتوكول موحد لطرق العلاج. **الـــهدف**: تقييم دور عامل النمو المتحول بيتا-١ في نشئه الندبات الجلدية وتقييم ومقارنة بعض طرق جراحات الجلد التجميليه في علاج الندبات الجلدية. **الطـــرق**: ٨٥ مريضا يعانون من الندبات الجلدية، تم قياس عامل النمو المتحول بيتا-١ في البلازما فيهم. ٥٠ مريضا بالجدرات (٢٠ مريضا تم علاجهم بليزر ثان أكسيد الكربون، ١٠ مرضى تم علاجهم بالحقن الموضعي بالكورتيزون، ١٠ مرضى تم علاجهم بالعلاج المركب، تشمل ١٠ مرضى تم علاجهم بالحقن الموضعي بمادة ٥- فلورويوراسيل). ٢٠ مريضا بالندبات المتضخمة (٥ مرضى تم علاجهم بالحقن الموضعي بالكورتيزون ، ٥ مرضى تم علاجهم بلاصقات السيليكون ، ٥ مرضى تم علاجهم بالليزر الصبغى الضوئي النبضي -٥٨٥ ن.م. ، ٥ مرضى تم علاجهم بالليزر ثان أكسيد الكربون). ١٥ مريضا بالندبات الضامرة (٥ مرضى تم علاجهم بواسطة السنفرة بليزر ثان أكسيد الكربون ، ٥ مرضى تم علاجهم بواسطة حقن الدهون ، ٥ مرضى تم علاجهم بواسطة البنش). **الـــنـــتـــائج**: مستوى عامل النمو التحولي بيتا-١ في البلازما لم يكن له أهمية في المرضى المصابون بالجدرات ، الندبات المتضخمة ، الندبات الضامرة أو الأشخاص الطبيعيين. يعتبر كل من ليزر ثان أكسيد الكربون، العلاج المركب ، الحقن الموضعي بالكورتيزون والحقن الموضعي بمادة ٥- فلورويوراسيل من الوسائل الآمنة والفعالة في علاج الجدرات. يعتبر كل من الحقن الموضعي بالكورتيزون ، لاصقات السليكون ، الليزر الصبغى الضوئي النبضي ٥٨٥- ن.م وليزر ثان أكسيد الكربون من الوسائل الآمنة والفعالة فى علاج الندبات المتضخمة. تعتبر السنفرة بواسطة ليزر ثان أكسيد الكربون واستخدام البنش من الوسائل الآمنة والفعالة في علاج الندبات الضامرة. حقن الدهون لم يكن من الوسائل الفعالة في علاج الندبات الضامرة.

Cutaneous Scars: management and implication of plasma transforming growth factor β_1 in their etiopathogenesis

BACKGROUND: The exact etiopathogenesis of keloid disease and hypertrophic scars continues to remain an enigma. Of all growth factors studied for a possible role in the development of keloid and hypertrophic scars, TGF β seems to be the most likely candidate especially TGF β_1. Although many articles have been published on the management of scars, there is no universally accepted treatment protocol. **OBJECTIVE**: evaluate the implication of TGF-β1 in the etiopathogenesis of the cutaneous scars and to evaluate and compare some aesthetic dermatosurgical techniques in the treatment of cutaneous scars. **METHODS:** a total of 85patients with scars, subjected to measuring plasma TGF-β1. 50 patients with keloid (20 patients treated with CO2 laser, 10 patients treated with intralesional steroid, 10 patients treated with combined techniques{CO2 laser plus intralesional steroid}, 10 patients treated with intralesional 5-flurouracil), 20 patients with hypertrophic scars (5 patients treated with intralesional steroid, 5 patients treated with silicon gel sheet, 5 patients treated with 585-nm flash lamp pulsed dye laser and 5 patients treated with CO2 laser.), and 15 patients with atrophic scars (5 patients treated with CO2 laser resurfacing, 5 patients treated with autologus fat transfer, 5 patients treated with punch excision). **RESULTS:** There is no significant difference between plasma TGF-β1 level in patients with all types of scars and controls ***(P = 0.147).*** CO2 laser, intralesional steroid, combined techniques, intralesional 5-flurouracil, were safe and effective methods in the treatment of keloid scars, with best results achieved by combination technique. Intralesional steroid, silicone gel sheet, 585-nm FLPDL and CO2 laser were safe and effective methods in the treatment of hypertrophic scars, with best results achieved by silicon gel sheet. CO2 laser resurfacing and punch excision were safe and effective methods in the treatment of atrophic scars. Autologus fat transfer was not effective in treatment of atrophic scars.

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Contents

Introduction

Anatomy of the skin

The skin is composed of three layers: epidermis, dermis, and subcutaneous tissue (fat). The epidermis, the outermost layer, is directly contiguous with the environment. It is formed of keratinocytes, whose basic function is to synthesize keratin, a filamentous protein that serves a protective function. The dermis is the middle layer, its principal constituent is the fibrillar structural protein collagen. The dermis lies on the panniculcus of subcutaneous tissue, which is composed principally of lobules of lipocytes. **(McGrath , 2004)**

There is considerable regional variation in skin thickness, the epidermis is thickest on the palms and soles, measuring approximately 1.5 mm. It is very thin on the eyelid where it measures less than 0.1 mm. The dermis is the thickest on the back, where it is 30 to 40 times as thick as the overlying epidermis . The amount of subcutaneous fat is generous on the abdomen and buttocks as compared with the nose and sternum, where it is meager. **(Bruce , 1994)**

Epidermis:

The epidermis is divided into four zones, beginning with the innermost layer: basal cell layer, prickle cell layer (malpighian layer), granular cell layer and horny layer (stratum cornium) these names reflect the changing appearance of the keratinocytes as it differentiates into a cornified cells. **(McGrath , 2004)**

The adult epidermis is composed of three basic cell types: keratinocytes, melanocytes, and langerhans' cells. An additional cell, the merkle cells, can be found in the basal layer of the palms and soles, the oral and genital mucosa, the nail bed and the follicular infundibula. The Merkel cells, located directly above basement membrane, contain

intracytopoasmic neurosecretory like granules, and act as slow adapting touch receptors. **(McGrath , 2004)**

Keratinocyte or squamous cell:

It is the principal cell of the epidermis. It is a cell of ectodermal origin that has the specialized function of producing keratin, a complex filamentous protein that forms the surface coat of the epidermis and structural protein of hair and nail. **(McGrath , 2004)**

Keratinocytes play a role in the immune function of the skin, and they participate in communication interaction, and regulation of cell systems collaborating iin the induction of the immune response. They secrete a wide array of cytokines and inflammatory mediators. They also can express molecules on their surface such as ICAM-1 and MHC class II molecules, which demonstrates that keratinocytes activity respond to immune effector signals. **(McGrath , 2004)**

The dermoepidermal junction

The junction of epidermis and dermis is formed by the basement membrane zone. Ultra structurally, this zone is composed of four components: the plasma membranes of the basal cells with the specialized attached plaques called hemidesmosomes; an electron lucent zone called lamina lucida; the basal lamina; and the fibrous components (as anchoring fibrils, dermal microfibrils, and collagen fibers). **(Bruce, 1994)**

The basement membrane zone is considered to be a porous semi permeable filter, which permits exchange of cells and fluid between the epidermis and dermis. It further serves as a structural support for the epidermis and holds the epidermis and dermis together. **(Bruce , 1994)**

The dermis:

All components of the dermis is mesodermal in origin except for nerves, which, like melanocytes, derive from the neural crest. Until the sixth week of fetal life, the dermis is merely a pool of acid mucopolyscccaride containing dendritic cells, which are the precursors of fibroblasts. By the twelfth week, fibroblasts are actively synthesizing reticulum fibers, elastic fibers, and collagen. A vascular network develops, and by the twenty fourth week, fat cells have appeared beneath the dermis. The principle components of dermis is collagen, a family of fibrous proteins comprising at least 15 genetically distinct types in human skin. Collagen serves as the major structural protein of the body; it is found in tendons, ligaments, and the lining of bones as well as in the dermis. It represents 70% of the dry weight of skin. **(Lever , 1990)**

The fibroblast also synthesizes elastic fibers, as well as the ground substance of the dermis, which is composed of glucosaminoglycans or acid mucopolysaccharides, principally hyaluronic acid. Elastic fibers differ both structurally and chemically from collagen as they consist of aggregates of two components: proteinfilaments and elastin, and amorphous substance. **(Lever , 1990)**

Collagen is the major stress resistant material of the skin. Elastic fibers contribute very little to resisting deformation and tearing of skin, but have a role in maintaining elasticity. **(Lever , 1990)**

Dermal dendrocytes are highly dendritic cells of the dermis that have phenotypic characteristics of macrophages. They are found in a perivascular network and may serves as the antigen presenting cell which initiates immune responses to antigen delivered through the circulation.