



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



HANAA ALY



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Evaluation of Serum Cathelicidin in patients with chronic spontaneous urticaria

Thesis

*Submitted For Partial Fulfillment of Master Degree in
Internal Medicine*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ

سَبَّحَانَكَ لَا إِلَهَ إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْعَظِيمُ

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List of Abbreviations

Abb.	Full term
AMP.....	Antimicrobial peptides
ANA	Antinuclear antibodies
APST.....	Autologous plasma skin test
ASST.....	Autologous serum skin test
ATA.....	Antithyroid antibodies
BBB	Blood-brain barrier
CAMP	Cathelicidin Antimicrobial Antibody
CNS	Central nervous system
CRP.....	C - reactive protein
CSU	Chronic spontaneous urticaria
CU.....	Chronic Urticaria
DM	Diabetes mellitus
DNA.....	deoxyribonucleic acid
dsRNA	Double-stranded ribonucleic acid
ELISA.....	Enzyme-linked immunosorbent assay
ESR.....	Erythrocyte sedimentation rate
H & E.....	Hematoxylin and Eosin
H. pylori.....	Helicobacter pylori
HSV	Herpes simplex viruses
HSV-2	Herpes simplex viruses type 2
IFN	Interferons
IgE	Immunoglobulin E
IgG	Immunoglobulin G
IL	Interleukin
IRF3.....	Interferon regulatory factor 3
LL-37	Henceforth referred to as LL-37

List of Abbreviations Cont...

Abb.	Full term
LPSs	Lipopolysaccharides
LTRAs.....	Leukotriene receptor antagonists
NETs.....	Neutrophil extracellular traps
NF-KB	Nuclear factor K–B
NK	Natural Killer lymphocytes
NSAIDs	Non-steroidal anti-inflammatory drugs
OD.....	Optical density
pDCs	Plasmacytoid dendritic cells
PET.....	Positron-emission tomography
REM.....	Rapid eye movement
RNA	Ribonucleic acid
ROS.....	Reactive oxygen species
TLR.....	Toll-like receptor
TSH.....	Thyroid stimulating hormone
UAS	Urticaria Activity Score
UV-A.....	Ultraviolet A
WHO	World Health Organization

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INTRODUCTION

Chronic urticaria commonly known as “hives”, is a prevalent disorder that affects between 15 and 25% of the population at some point during their lifetimes. The condition tends to be more common in adults than in children and in women than in men with peak occurrence in the third to fifth decades of life (*Wang et al., 2004*).

Chronic spontaneous urticaria (CSU) refers to recurrent urticaria lasting more than 6 weeks that occur in the absence of an identifiable trigger. Urticaria that are incited by a well-defined eliciting factor (e.g., pressure, temperature, vibration) are referred to as inducible urticaria. Multiple studies have suggested that CSU may be an autoimmune condition in a substantial proportion of cases, but it is important to identify potential triggers of disease and exclude other differential conditions prior to making the diagnosis (*Poonawalla and Kelly, 2009*).

Antimicrobial peptides (AMP) act as an important defense mechanism against bacterial, viral or fungal infection of eukaryotic organisms. These innate immune molecules are synthesized by epithelial cells or lymphocytes (*Bernstein et al., 2014*).

The Cathelicidin LL-37 (henceforth referred to as LL-37) peptide is the only member of the family of human cathelicidins. In recent years, this peptide has gained the

interest of the scientific community because besides its antimicrobial properties, LL-37 is an immunomodulator that can contribute to the development of autoimmune diseases as type 1 DM, systemic lupus erythematosus, atherosclerosis and psoriasis (*Döring et al., 2012*).

So evaluation of serum level of Cathelicidin in CSU especially autoimmune part of it will explore new insight in the pathogenesis.

AIM OF THE WORK

- Assessment of Serum Cathelicidin levels in patients with chronic spontaneous urticaria
- Correlate Serum Cathelicidin with Urticaria Activity Score.

Chapter 1

CHRONIC SPONTANEOUS URTICARIA

Urticaria (called also wheals, hives, or nettle rash) is characterized by erythematous, pruritic, and edematous wheals. The hallmark of urticaria is that individual lesions wax and wane rapidly, usually lasting less than 4 hours. It is important to be sure whether lesions last less or more than 24 hours as this increases the probability of urticarial vasculitis. Urticaria is classified as acute or chronic (*Doong et al., 2017*).

Chronic Urticaria (CU) refers to recurrent wheals, which occur for a period of \geq six weeks. CU can be divided into 2 different subtypes, chronic idiopathic urticaria (called also chronic spontaneous urticaria) and chronic inducible urticaria (called also physical urticaria). CU is self-limited disorder in most patients (*Kudryavtseva et al., 2019*).

Chronic inducible urticaria

Chronic inducible urticarias which described as intermittent urticarias because the frequency is dependent on the particular stimulus. For example, physical urticarias e.g., cold urticaria and dermatographism. Local and generalized heat urticaria, solar urticaria, aquagenic urticaria. In pressure urticaria, there is an interval of hours between the application of the stimulus and the beginning of the rash. The lesions lasting 12–36 hours, there is an inflammatory reaction on skin biopsy,