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بالرسالة صفحات
لم ترد بالأصل

STUDY OF PROLACTIN HORMONE LEVEL IN PATIENTS WITH CANCER OF THE BREAST.

Thesis
Submitted to the Faculty of Medicine,
Alexandria University, as a part of the degree of

MASTER OF GENERAL SURGERY

By

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إهداء

إلى والدى ووالدتى
إلى زوجتى
إلى إبنتى إسراء

INTRODUCTION

Introduction

PROLACTIN:-

Human prolactin hormone is a polypeptide hormone, it contains 199 amino acid residues and 3 disulfide bridges, its structure is similar to human growth hormone and chorionic gonadotropine hormone of the placenta, (Fig. 1).[1]

Prolactin is secreted by the anterior lobe of the pituitary gland by the lactotropes which are acidophilic cells that has only recently been isolated[2]. The normal plasma concentration is approximately up to 10 ng/ml in men, and up to 20 ng/ml in women under basal condition (non pregnant, non lactating). Pregnant levels reaches 25±2.5 ng/ml at 10^{th} week and rises to 200±45 ng/ml at term.[3]

Prolactin secretion is under the regulation of the hypothalamic-neuroendocrine reflux (hypothalamic releasing and inhibiting factors), usually the effect of the hypothalamic prolactin inhibiting hormone (PIH) overbalances the effect of putative prolactin releasing hormone[4,5]. Cutting of the pituitary stalk leads to an intensive increase in circulating prolactin.[6]

Its mode of action is as other peptide hormones, interact with cell surface receptors on the cell membrane of its target organs (breast, kidney, gonads, adrenals, and liver) and activate adenyle cyclase enzyme, that employs cAMP as

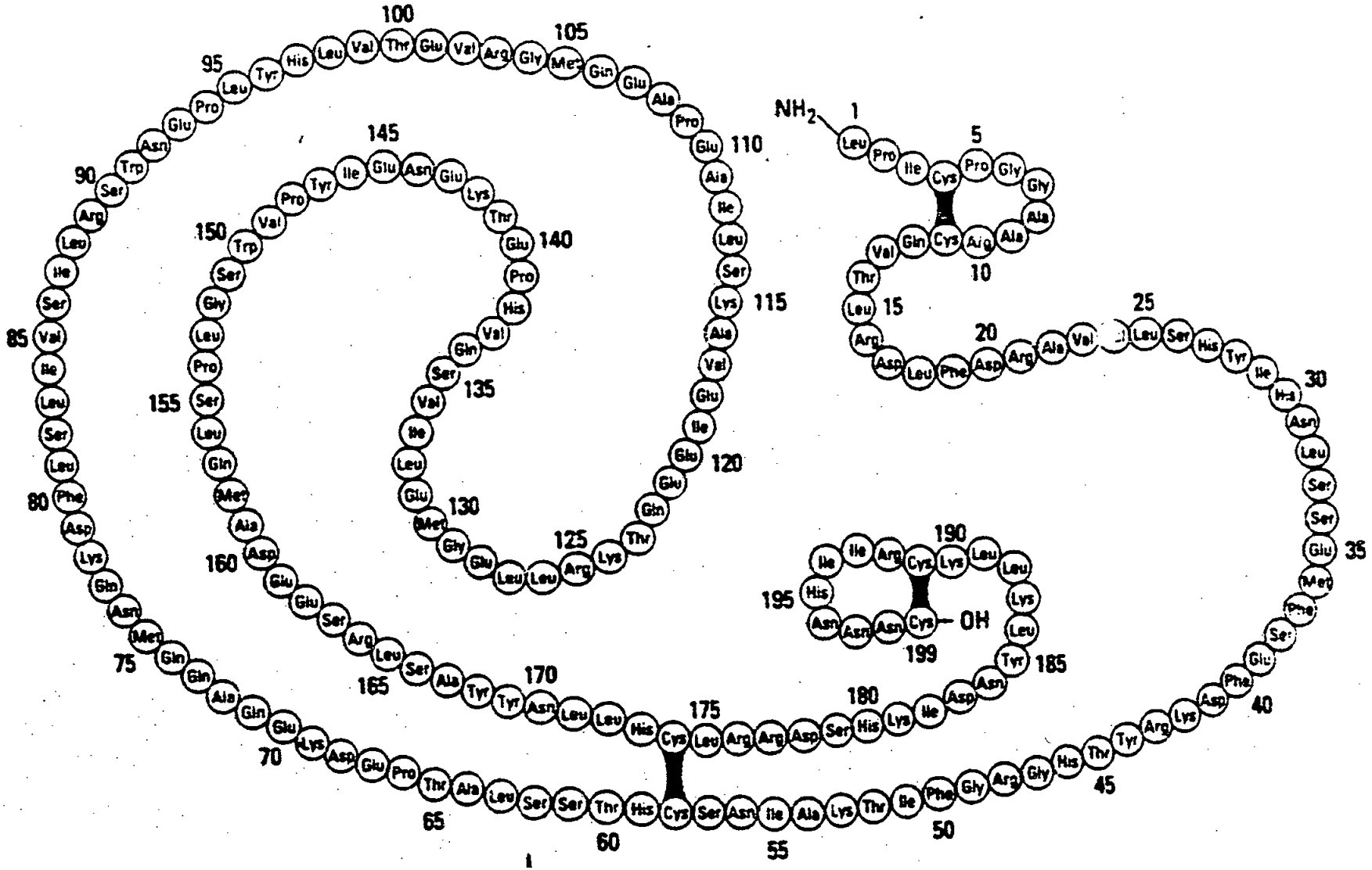

Fig. 1: Structure of human prolactin.

their intracellular mesenger. This occurs by the conversion of ATP within the cell into cAMP which specifically binds to cytoplasmic receptors and forms cAMP-receptor complex. This complex, on its turn, activates protein kinase resulting in initiation of phosphorylation of specific enzyme necessary to induce the physiologic effect of hormone. Prostaglandins have been involved in the mechanism of action through stimulation of cAMP, accumulation and increase hormone concentration. The major physiologic function of prolactin is to initiate and maintain lactation and breast tissue development.[7]

The predominant prolactin moiety secreted by the pituitary gland is monomer "little prolactin" which constitutes about 90% of total human pituitary prolactin, "big" and "big big" prolactin comprising 10-20% and 1-8% respectively of the total concentration[8]. Evidence shows that the monomeric form may be more biologically active, measured by receptor binding activity, compared to the large forms.[9]

In pregnancy, plasma prolactin level rises progressively to reach a peak concentration at time of delivery. After parturition its level falls to non pregnant level in about 8 days[10]. Suckling causes a prompt increase and lactation causes further stimulation which may be sustained throughout from 3-6 months in an intermittent manner. With

prolonged lactation, milk secretion occurs with prolactin levels that are in the normal range, (Fig. 2).[11]

Neonatal prolactin concentration is high, but falls to adult level at the age of three months.[12]

Prolactin level in the blood rises during sleep, the rise starting after the onset of sleep and persisting throughout the sleep period[13]. Also it is increased by; exercise, surgical and psychological stresses. Table (1) shows factors affecting the secretion of prolactin hormone in humans.[14]