Long Acting Bromocriptine Injection in Postpartum Suppression of Lactation

Thesis

Submitted in Partial Fulfilment for
the Master Degree in Obstetrics and Gynaecology

By

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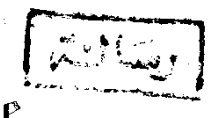

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بسم الله الرحمن الرحيم

يَأيُّهَا النَّاسُ إن كُنتُم فِي رَيْبٍ مِنَ البَعْثِ فَإِنَّا خَلَقْنَاكُم مِن تُرَابٍ ثُمَّ مِن نُطفَةٍ ثُمَّ مِنْ عَلَقَةٍ ثُمَّ مِن مُضْغَةٍ مُخَلَّقَةٍ وَغَيرِ مُخَلَّقَةٍ لِنُبَيِّنَ لَكُمْ وَنُقِرُّ فِي الأَرْحَامِ مَانَشَاءُ إلى أَجَلٍ مُسَمى ثُمَّ نُخْرِجُكُمْ طِفْلاً ثُمَّ لِتَبْلُغُوا أَشُدَّكُمْ وَمِنكُم مَن يُتَوَفَّىٰ وَمِنكُم مَن يُرَدُّ إلى أَرْذَلِ الْعُمُرِ لِكَيْلاَ يَعْلَمَ مِن بَعْدِ عِلْمٍ شَيئًا وَتَرَى الأَرْضَ هَامِدَةً فَإِذَا أَنزَلْنَا عَلَيْهَا الْمَاءَ اهْتَزَّتْ وَرَبَتْ وأَنبَتَتْ مِن كُلِّ زَوْجٍ بَهِيجٍ.

صَدَقَ اللَّه العظيم
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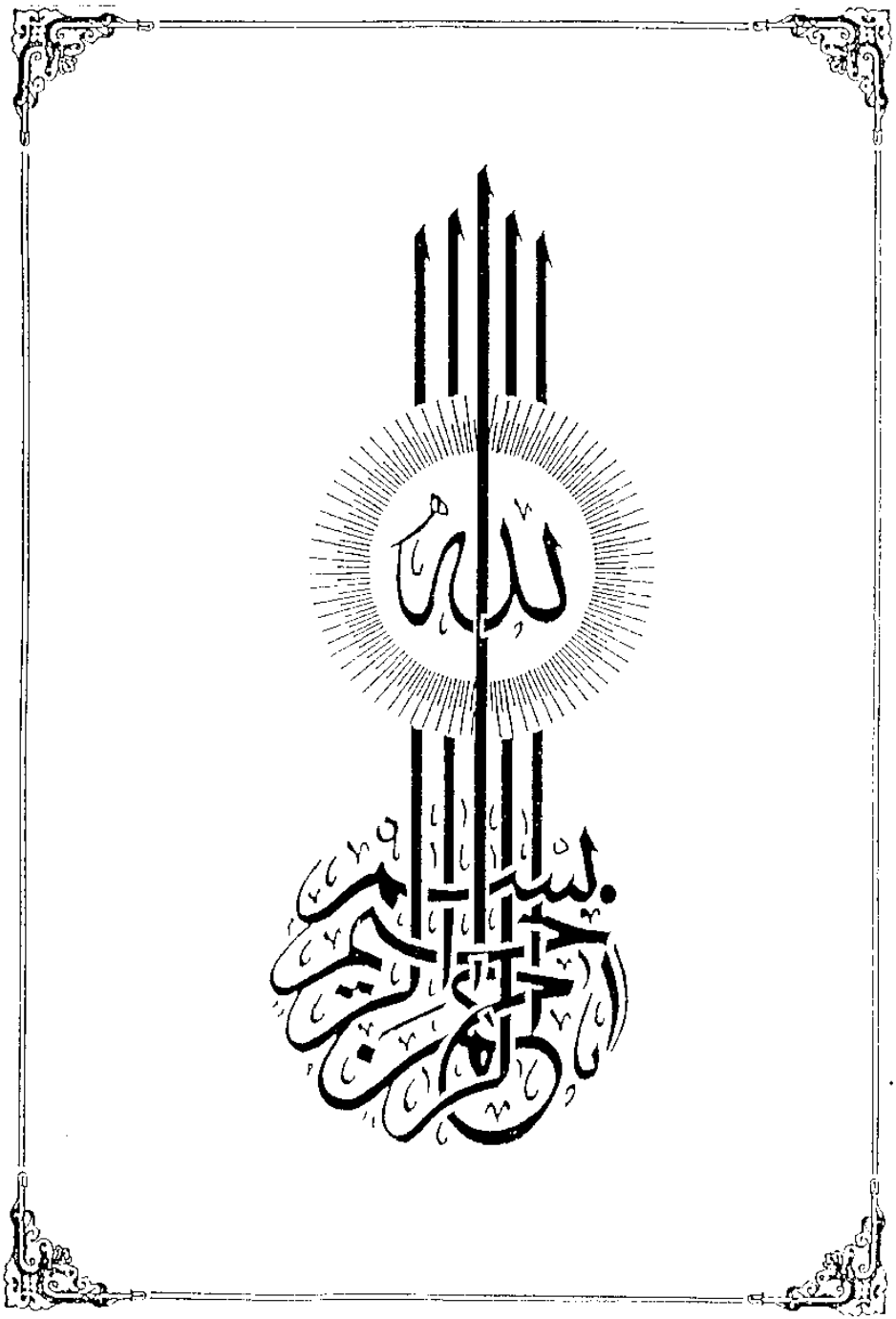

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INTRODUCTION & AIM OF WORK

INTRODUCTION

Despite the important of breast feeding for infant nutritional, immunological and psychological advantages, however, lactation have to be suppressed in some situation for a variety of reasons, in mother e.g., tuberculosis, decompensated heart failure, chronic renal failure, mastitis, inverted nipple, intake some urgent drugs such as cytotoxic drugs. Some mothers unlike to lactate their newborn infants for professional or socioeconomic reasons, or reasons in the newborn infant, such as, congenital anomalies, intrauterine fetal death, premature or lactose intolerance.

There have been several measures available for suppression of lactation, but, none seems to be completely satisfactory. Among those methods were, mechanical, such as, breast binder with or without the use of ice packs and analgesics. However, high failure rate was reported *(Gezzel et al., 1979)*.

Also, sex steroid hormones (e.g., estradiol valerate and testosterone enanthate) have been proven effective for this purpose, but, their use is diminished, since of high risk thromboembolic and virilization respectively *(William et al., 1980)*.

Antiestrogens (tamoxifen and clomiphene citrate) have been used. However, their effectiveness is still controversial *(Neilk et al., 1980)*. Remained to be better are, prolactin inhibitors, such as, bromocriptine which has shown to be safer, well tolerated, highly effective and of minimal complications, particularly with the use of injectable form *(Rolland, 1984)*.

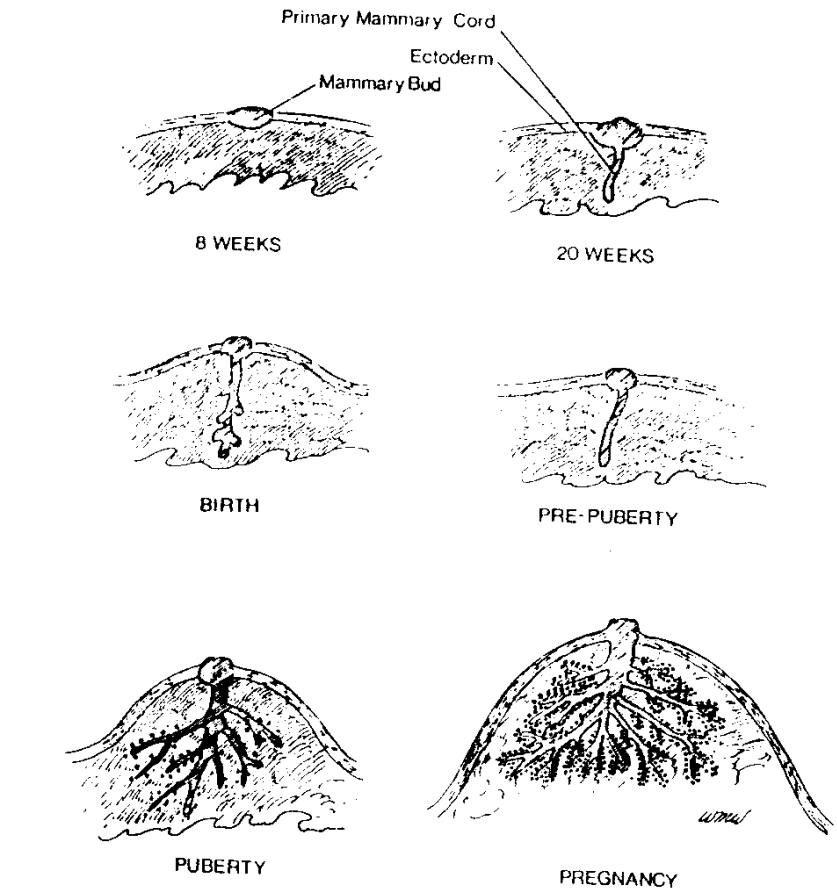
AIM OF THE WORK

The aim of this work was to assess the role of long-acting bromocriptine in suppression lactating, in 25 postpartum women who delivered dead fetuses or lost their newborn infants.

EMBRYOLOGY, ANATOMY, HISTOLOGY AND PHYSIOLOGY OF THE BREAST

EMBRYOLOGICAL DEVELOPMENT OF THE BREAST

A thickening, ectodermal ridge or milk line appears early in the sixth week of development. This ridge extents along the anterior body wall from the axilla to the groin. The thickening regresses except in the pectoral region, where the mammary gland develops in relation of the second to the sixth rib. During the fifth month of the development a group of fifteen to twenty slid cords grow deeper into the subcutaneous tissue, later on these cords hollow out to form primary milk ducts, which continue to grow and branch, each duct open separately into the body surface in the region that will become elevated to form the nipple. Surrounding the developing nipple the ectoderm becomes pigmented, remain free of hair and develops gland of Montgomery. This areolar region begins to become prior to puberty, with subsequent enlargement of the developing breast due to accumulation of fat lobules between developing ducts. At the puberty the ducts continue branching and develop acini at their termination. During pregnancy, the duct and acini become stimulated by steroid hormones to increase in the size and complexity *(Langman, 1980)*.



Sequential growth of the mammary gland is illustrated from 8 weeks embryonic age through puberty and during pregnancy. (Courtesy of Dr. John C. Porter)

ANATOMY

The breasts are modified sebaceous glands lie within the superficial fascia on the ventral surface of the thorax. They extend vertically from the second rib to the sixth or seventh intercostal cartilage, and from the lateral side of the sternum to the mid axillary line. A prolongation of glandular tissue frequently arises from the superiolateral quadrant and extends to the axilla. This mass, the axillary tail of Spence, may pass through an opening in the axillary fascia, the foramen of Longer *(Morehead, 1982)*.

During pregnancy and lactation, breasts increase two or three times in size. Following cessation of lactation, the breasts return to normal size and tend to become more pendulous. The breasts vary considerably in size and shape as compared with general body size, however, the underlying cause is not well understood. The nipple and areola are the most prominent features of the breast in nulliparous these structures usually lie in relation to 4th rib or 4th intercostal space. The nipple is usually cylindrical or conical in shape, pigmented and measures approximately 10-12 mm in height. Minute openings of lactiferous ducts may be seen on its surface. Occasionally the nipple may be retracted beneath the surface of the breast and projects only on stimulation. The mammary gland proper consists of 15-20 lobes with their apices toward the nipple and the bases forming the periphery of the gland. Each lobe has an excretory duct which

opens individually on the surface of the nipple. Beneath the areola, the duct increases in the diameter forming the lactiferous sinus. Beyond this dilatation, the duct begins to branch forming lobules and eventually acini. A single lobe would consist of all the lobules and acini that empty into single excretory ducts. The secretory glandular tissue that forms the parenchyma is surrounded by fatty connective tissue. The dorsal surface of the gland separated from the pectoralis major and serratus anterior muscles by retromammary fat and loose areolar tissue. Fibrous bands (Cooper's ligaments) interconnect the glandular tissue superficially to the skin and on the deep aspect of the gland, they pass through the retromammary bursa to attach to the fascia of the muscles.

Blood Supply of the Breast

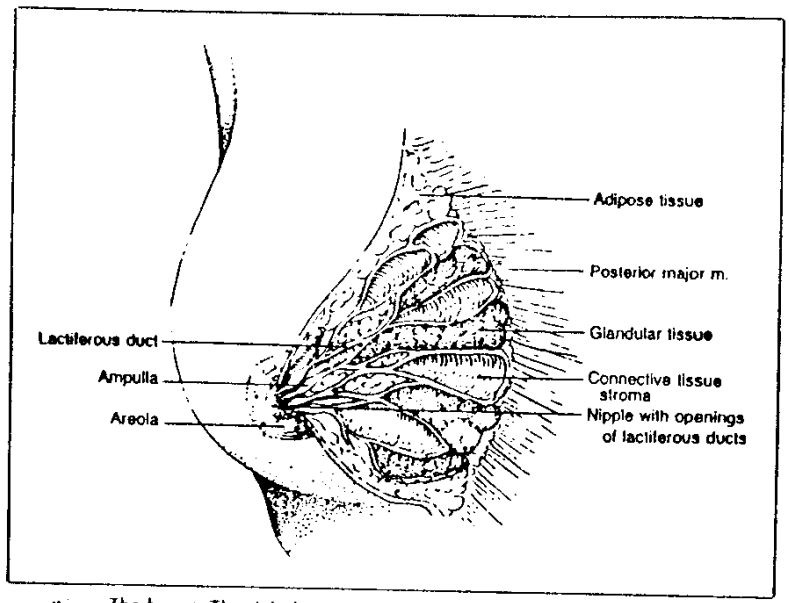
The arterial supply of the breast of the female comes primarily from four sources: (a) branches from the internal thoracic artery (internal mammary) which are large and constant, (b) from the lateral thoracic artery, (c) branches from intercostal artery and (d) superior thoracic artery. The arterial pathways enter the gland from the deep surface or from the superior medial or superiolateral borders. The veins form a subareolar plexus and then join branches from the glandular substance to run to the borders of the gland. In general veins follow the arterial pathways and end in either the axillary vein laterally internal thoracic vein medially *(Morehead, 1982)*.

Nerve Supply

The lateral portion of the gland receives sensory innervation for the anterior rami of lateral cutaneous branches from the 4th to the sixth intercostal nerves. The medial portion receives innervation from the medial mammary rami of the anterior cutaneous branches of the second to fifth intercostal nerves. Branches from supraclavicular nerves (cervical plexus) also supply the breast, sympathetic fibres reach the smooth muscles of the areola and nipple, arterioles and glandular tissue by the travelling on adventitia of the arteries *(Morehead, 1982)*.

Lymphatic Drainage

Deep to the nipple and areola a double subareolar lymphatic plexus exists. The deeper plexus drains the superficial plexus and the vessels from the glandular substance. Two major trunks (superior and inferior) pass from this plexus laterally to enter a group of nodes situated along the deep margin of the anterior axillary fold. Subsequent drainage passes through central axillary to apical nodes which in turn communicates with deep cervical nodes in the supraclavicular fossa. Approximately 75% of lymphatic drainage of the breast is directed toward the axilla. The remaining lymphatic drainage passes medially to parasternal channels and nodes associated with the internal thoracic vessels *(Morehead, 1982)*.



The breast. The right breast is partially dissected showing the secretory portion.