

## Chapter 7

# Male Infertility Management With Alternative Medicine: Promises, Practice, and Perspectives – Treatment of Male Infertility Using Plant–Based Alternative Medicine

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### ABSTRACT

*In this chapter, the main causes of male factor infertility, specifically endocrine abnormalities and effect of endocrine disrupters, will be outlined. For many patients, conventional therapy presents considerable financial strain and moral dilemma. In this context, many patients are preferring complementary medicine (CAM). Hence, the promises offered by herbal medicine including Ayurveda, Arab, and Chinese medicine will be explored in this chapter. Many naturopathic medicaments such as Withania somnifera, Asparagus racemosus, Curculigo orchoides, Zingiber officinale, etc. are being routinely used as part of traditional medicine practice in Ayurveda and Arab medicine and gaining wider acceptance in other countries. Common herbs, targeted infertility condition, and results thereafter shall be discussed. In the concluding part of the chapter, the potential deleterious contraindications of alternate medicine such as lead toxicity from Ayurvedic medications shall be briefly discussed.*

### INTRODUCTION

Infertility is a major health concern that affects nearly 15% of sexually active couples. Male infertility contributes to approximately 50% of these cases (Pasqualotto, 2004). While there are many causes for male infertility, endocrinological reasons are relatively easier to treat. Infertility results due to impaired spermatogenesis and is affected by Hypothalamus-Pituitary-Gonadal Axis (HPG). Hormonal imbalance due to disruptions of HPG, inevitably result in poor sperm production. Exposure to endocrine disruptors can also cause infertility (Anawalt, 2013). This chapter discusses in depth the process of

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spermatogenesis, impact of HPG axis and influence of endocrine disruptors to understand etiology of infertility. Conventional treatment strategy involves treatment with hormones and health supplements such as vitamins and antioxidants. Due to various disadvantages associated with this option, many couples worldwide are resorting to complementary alternative medication (CAM) involving plant based herbal medicines. Three popular herbal treatment practices are- Ayurveda, Arab Traditional Medicine (ATM) and Chinese herbal medicine. Important herbs recommended by each of these regimens is discussed in detail. Certain limitations associated with herbal treatment such as toxicity concerns, lack of sufficient data and absence of information regarding mode of action are reviewed and finally recommendations for overcoming these issues are suggested in the concluding part of the chapter.

## **BACKGROUND**

Infertility is classically defined as the inability for a couple to conceive after 12 months of frequent vaginal intercourse without the use of contraception (Gnoth, 2005). The most common cause of male subfertility is primary testicular dysfunction and a defect in spermatogenesis that is generally due to irreversible damage, and these men typically require treatment with Assisted Reproductive Technology (ART) (Jungwirth, 2012).

Infertility can occur when there is a low sperm count, or problems with the motility (movement) or morphology (appearance or shape) of the sperm. The World Health Organization (WHO) estimates that approximately 50-80 million people suffer from infertility. Causes of male infertility can be divided into three main categories:

- A) Sperm production disorders affecting the quality and/or the quantity of sperm (Non Obstructive Azoospermia, NOA). NOA may be manifested as Sertoli cell-only pattern (SCO), maturation arrest (MA), or hypospermatogenesis.
- B) Anatomical obstructions (Obstructive Azoospermia)
- C) Other factors such immunological disorders.

Approximately a third of all cases of male infertility can be attributed to immune or endocrine problems, as well as to a failure of the testes to respond to the hormonal stimulation triggering sperm production. However, in a great number of cases of male infertility due to inadequate spermatogenesis (sperm production) or sperm defects, the origin of the problem still remains unexplained. The etiology of male infertility is either congenital or acquired due to environmental toxins or disease processes (Anawalt, 2013). In order to evaluate factors that may cause infertility, it is crucial to understand the process by which sperm are produced in male testis, namely Spermatogenesis and mechanisms of its regulation.

## **Spermatogenesis**

The sequence of cytological events that result in the formation of the mature spermatozoa from precursor cells is known as spermatogenesis. Spermatogenesis is largely orchestrated, by complex endocrine and auto/paracrine regulation as well as by direct cell to cell interactions (Sharpe, 1986). Defects in the process or regulation of spermatogenesis result in infertility.

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