

Gonadal guardianship-ergonomic endocrinology' to 'Gonadal guardianship'

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Introduction

Reproductive and sexual health is not only an important aspect of human health; it is essential for propagation of the human race. It is imperative, therefore, to focus on prevention of illness as well as promotion of reproductive and sexual health. We term this approach as gonadal guardianship.

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Definition

Gonadal guardianship refers to the policies, processes and practices that propagate healthy sexual and reproductive behaviours, promote sexual and reproductive health, and preserve sexual and reproductive optimally.

While the gonads are a small part of human anatomy (the ovaries weigh 4-8 grams, while the testes are 15-20 grams heavy), they are linked closely with the rest of the body. The gonads are connected to the genital tract, and are influenced by systemic factors. Endocrine, metabolic and nutritional health have an important role to play in gonadal function.¹ Medical and surgical disease can also influence reproductive and sexual status. The concept of gonadal guardianship, therefore includes systemic and endocrine modulation, along with genital guardianship.

Description

Gonadal guardianship can be structured in four domains: Environmental/ endocrine guardianship, medical/metabolic guardianship, gamete guardianship and genital guardianship. These are described further in Table.

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Environmental and endocrine guardianship refers to policies, processes and practices that minimize the deleterious effects of endocrine disruptor chemicals. Reduction in use of plastics, harmful chemicals, fossil fuels and radiation-emitting devices is a part of primordial gonadal guardianship. Optimizing antenatal care and nutrition, as well as avoiding exposure to teratogenic drugs during pregnancy is an equally important aspect of primordial prevention.^{2,3}

Medical and metabolic guardianship implies taking care of overall health. Systemic diseases, including infections like orchitis or oophoritis, endocrine disorders such as autoimmune endocrinopathy and multiple endocrine neoplasia and metabolic conditions, including obesity and type 2 diabetes, may impact gonadal health adversely. Screening, timely diagnosis and early treatment of metabolic and endocrine disease, are an example of primary prevention in gonadal health.⁴

Certain individuals who have evidence of gonadal compromise, or gamete dysfunction, or are at high risk of these diseases, will need secondary and tertiary preventive strategies as well. Gonadal preservation and gamete optimization, by using nutraceuticals (inositols in polycystic ovary syndrome, coenzyme Q, carnitine, zinc in oligoasthenospermia) is an example of such a strategy. Safe contraception also helps in ensuring gonadal health, and must be advocated.⁵⁻⁷

Gonad preserving surgery wherever possible (e.g., preserving ovaries during a hysterectomy), and performing gonadal surgery in intersex and transgender persons, only after a comprehensive, complete, informed consent has been taken are other examples. Gamete preservation prior to chemotherapy, radiotherapy or gonadal surgery is a part of gonadal guardianship.⁸

The genital tract is an integral part of the reproductive system. Genital hygiene and care, therefore, should be included within the ambit of gonadal guardianship. Preventing mutilation and unnecessary surgery, ensuring hygienic practices, and rational use of drugs which may predispose to genital tract infections, are part of this approach.^{9,10} This domain overlaps primary and secondary prevention.

Table: Gonadal Guardianship.

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- Environmental and endocrine guardianship
 - Promotion of healthy lifestyle
 - Prevention of exposure to endocrine disruptor chemicals
 - Prevention of exposure to radiation
 - Prevention of exposure to global warming
 - Genital and sexual hygiene
 - Hygienic genital and sexual practices
 - Prevention/timely management of sexually transmitted/genital tract diseases
 - Rational use of probiotics
 - Avoidance of genital mutilation
 - Metabolic and medical guardianship
 - Prevention/timely management of systemic diseases
 - Appropriate immunization, e.g. against rubella, human papilloma virus
 - Prevention/timely management of gonadal diseases
 - Nutraceuticals for gonadal health
 - Gonadal and gamete preservation
 - Gamete preservation prior to radio/chemo/surgical therapy
 - Gonadal surgery in intersex/ transgender persons only after full evaluation and informed consent
 - Gonad preservation during surgery, wherever feasible
 - Safe contraception
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Summary

Gonadal guardianship is the responsibility of all health care professionals, especially endocrinologists, gynaecologists and andrologists. This concept must be highlighted at all public health as well as clinical medicine platforms, so that optimal gonadal health can be achieved and maintained.

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