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Seminal Parameters: Current Status

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The World Health Organization laboratory manual for the examination of human semen and sperm–cervical mucus interaction was first published in 1980, in response to a growing need for the standardization of procedures for the examination of human semen. It has since been updated three times, and translated into a number of languages. Over the past 30 years, the manual has been recognized as providing global standards and has been used extensively by research and clinical laboratories throughout the world. Classically, infertility is defined as the inability to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. The incidence of male infertility is the same woman, i.e. around 40%. The other 20% apply to both. On the other hand, the chance of a couple to become pregnant is not high. Is around 15-17% per month [1].

Many definitions used in medically assisted reproduction vary in different settings, making it difficult to standardize and compare procedures in different countries and regions. With the expansion of infertility interventions worldwide, including lower resource settings, the importance and value of a common nomenclature is critical. In 2009, a consensus was reached on 87 terms, expanding the original glossary by 34 terms, which included definitions for numerous clinical and laboratory procedures. Special emphasis was placed in describing outcome measures such as cumulative delivery rates and other markers of safety and efficacy in ART. This glossary will contribute to a more standardized communication among professionals responsible for ART practice, as well as those responsible for national, regional and international registries [2].

Male factors are involving in 40% of all causes of infertility. Male factors are divided to 3 main causes: sperm production disorders, sperm functional and vas deferens obstruction.

Sperm analysis (spermogram) is an essential important diagnostic study in male infertility diagnostic approach and usually is abnormal in infertile men. Unfortunately, infertility in most of men is idiopathic that shows lack of our knowledge from different mechanism of testis functions. Environmental factors like heat, smoking, radiation, heavy metals and others can effect on spermatogenesis. Febrile diseases can cause considerable but reversible decrease in sperm count. Based on some theories heat generator environmental sources like jobs who need long time sitting (like driving) can cause infertility, although yet these have not been proved by clinical trials [3,4].

Many factors must be considered in the determination of normal values or reference intervals. One extremely important factor is the choice of which population to study. Where the range of test values seen in healthy individuals is the primary concern, volunteers should be selected who reflect the overall healthy population. Possible approaches that can be used include studying a 'random' sample from a 'normal' population such as volunteer blood donors, door-to-door contacts, medical students, or medical technologists. Regardless of the reference population selected for study, there is always the potential that the specific group of individuals selected may not be representative of that population. As the same factors that lead individuals to volunteer for such a study (e.g., participants may volunteer owing to an underlying concern about their health, and study organizers have offered the inducement of free laboratory test results or a free medical evaluation) may also have an effect on their test results, the resulting population values may be biased [5].

The ageing population and the decline in fertility are related, leading to a reduction in population growth and the creation of a new emerging family structure. Thus, techniques that interfere with reproduction contribute to this scenario. A new family profile is being observed. The quest to obtain a pregnancy has been for decades exceeding limits. The male reproductive potential status can result in more offspring in spite of increasing age. In fact, male and female lifetime strategies are as different as their mate selection criteria and the resulting cognitive differences [6,7].

The observation that sperm DNA damage is significantly higher in older men is of particular concern. There is strong clinical evidence that sperm DNA damage is detrimental to reproductive outcomes. As well, these couples are at increased risk of poor blastocyst development and unsuccessful pregnancy outcomes. Many of these couples will require identification of DNA fragmentation examination in the sperm sample obtained from the epididymis. It is necessary to encourage the attainment of the preimplantation genetic diagnosis in old couples. It is preferable to obtain testicular spermatozoa in these cases, which have a reduced DNA fragmentation and can recover by a similar technique [8].

From the literature search, there is a great difficulty in the methodology of the analysis of human semen. The potential effects on reproduction remain controversial, probably due to methodological difficulties and their interpretation, since multiple variables including analytical procedures hinder the establishment of reference values. It then became a point capital to establish its own methodology, reliable, suitable for use in clinical laboratories.

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