Estimation the Time Period for Human Spermatozoa Activity in Vitro Under the Same Conditions

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Abstract. Twenty one semen samples from the young men, their ages ranged between 18-35 were taken, divided into three groups depending on the activity of sperm motility. The time period (per hours) of sperm activity was monitored microscopically in vitro. Semen samples were taken from the males after not ejaculating for three days respectively . In the first 30 minutes, took equal volumes of semen for all samples and kept at 37 °C and examined each sample separately. The samples which contain oligoasthenozoospermia, high rates of pyospermia and higher numbers of abnormally shaped sperm (more than 40%), were neglected so as to avoid some of the possible causes of the dead of spermatozoa early. In the current study, the results showed significant differences ($p< 0.05$) in the remaining time period for spermatozoa in vitro under the same conditions, where the lowest remained period in vitro was recorded about six-hour while the largest remained period was recorded about 11 hours, followed by about 10.5 hours after ejaculation. Moreover, it was found that there is a direct correlation between the increasing remained time period in vitro for spermatozoa and the percentage of active spermatozoa after ejaculation. However, results have shown that 15-30% of the total activity of spermatozoa decreases after two-three hours from ejaculation and the death rate reaches about 80% after six hours and about 95% after nine-hour from ejaculation for most samples.

Keywords: Spermatozoa, Human, In vitro.

INTRODUCTION

Spermatozoa can be defined as matured motile cells, which are spermatogenesis products. The average healthy man produces a range of (20 – 240) million sperms daily [1] the spermatogenesis represents a chain of the cellular events, supporting the daily sperm production [2]. One of the most significant sperm cell characteristics is their motility that is necessary for ensuring the male fertility. In fact, there are 2 motility types, which are: hyper-activated motility, observed in the spermatozoa at the fertilization site and activated motility, which is observed in ejaculated spermatozoa. The two motility types need a sufficient energy supply in a form of the ATP, which is utilized by flagellar dynein-ATPase. There has been a long-standing dispute about which metabolic pathway, OXPHOS or glycolysis, is involved in the sperm motility energy production [3-4]. In the human beings, the spermatogenesis process generates from 20 million to 240 million sperms daily and it is dependent upon the tight cellular metabolism regulation. In addition to that, several selective mechanisms in the epididymides and testes play a role in ensuring that there are high quality sperms ready for the ejaculation [5].

Generally, the geographic and racial variations may have a role in specifying the characteristics of the semen, where, several researches showed ethnic differences concerning the parameters of the semen. For instance, a

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