

Male Infertility in 347 Years

347 Yılda Erkek Kısırlığı

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The current male infertility concept has its roots in the famous letter that was written by Antonie van Leeuwenhoek to Royal Society in November 1677. Leeuwenhoek described for the first time the motile spermatozoa in semen and its pictures that he has drawn. Consequently, he noted that the absence of active and motile spermatozoa in semen is the reason of male infertility in 1685. Aproximately 200 years later Sims pointed out the importance of sperm in fertilization in 1866. Brown-Sequard noted for the first time the dual function of testis (Hormone synthesis and spermatogenesis) 1889.

Intrauterin insemination (IUI) may be considered as the first step in the assisted fertilization mode of treatment of infertile men. In medical literature the fist report dates back to 1770 that explains the application on a case with hypospadias by JOHN HUNTER (1728–1793). Then, JM Sims reported the only one successful pregnancy out of 55 cases of IUI application in mid 1800s.

In 1949 Polge discovered glycerol to freeze the sperm and in 1953 the first pregnancy is achived by using frozen-thawed sperm. However, there was no significant effort to evaluate the sperm morphology which is an important concept in andrology untill twentieth century. The first study on this subject was carried out by Cary in 1916 and this was followed by the definition of acrosome in the head of sperm by Williams in 1934. MacLeod and Gold formed the first standard criteria for sperm morphology in 1951. Afterwards, many researchers especially Kruger and Menkweld finalized the questions on this subject in 1990.

The other noteworthy achievement is the publication of the first edition of laboratory manual for sperm evaluation by WHO in 1980. The 6th edition of the manual, that was the last one, is published in 2021. The lab.manual advancing at each issue

formed an important reference for fertility endocrinologists and andrologists working in this field.

The most important information was that the cut-off values for sperm number per mililiter, motility and sperm morphology was determined for fertile and infertile men.

The next step was to classify the treatment strategies by assisted fertilization technics with the determined sperm qualifications. For instance, the minimum male sperm number in ejaculate for getting pregnant is 16 millions per mililiter, while the total motile sperm number added to the IUI preperation should be 5–10 millions in native ejaculate.

In IVF (In Vitro Fertilization) applications, the washed sperm number per ovum to be put in the tube is 100,000—250,000. The first successful IVF application that gave a living baby is made in 1978 by Robert Edwards and Patrick Steptoe. Robert Edwards received the Nobel Prize in Medicine for his pioneering work in IVF in 2010. Later, intracytoplasmic sperm injection (ICSI) was done in Belgium by Palermo et. al. in 1992. Here, the sperm number used was only one. This leads to conclude that fertilization, pregnancy and live birth may be achived by only one living sperm obtained from male of the infertile couple is possible.

Incredible developments in male fertility continued to emerge after this application. In azospermic (no sperms in ejaculatate) cases, sperms for ICSI were obtained by testis biopsies. This advancement in manipulation of male genital system anatomy led to histological attempts that provided undifferentiated round sperms were used successfully in fertilization.

More than seven million assisted fertilization pregnancies are obtained since the beginning and we will all be looking forward excited to the future developments.

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