

## RESULTS OF 15 YEARS SEMEN ANALYSIS IN A TRAINING HOSPITAL ANDROLOGY LABORATORY

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### SUMMARY

**Background:** Changes and definitions of the semen values of male partners of infertile couples referred by Infertility clinic to the andrology laboratory in 15 years period.

**Materials and methods:** Between January 1995 and July 2009, 9327 semen samples of 6780 male patients were analyzed at Bakirköy Maternal and Children's Health Education and Research Hospital, Department of Infertility Andrology laboratory. Analysis made prior to 2000 were according to the World Health Organization (WHO) manual of 1992, while those made after 2000 WHO manual of 1999. Morphology was evaluated according to Kruger-strict criteria. All of semen analysis were performed by one doctor (MD Ph.D.) who has a certification of ART laboratory.

**Results:** Annual distribution of 9327 analyses: 293 in 1995, 492 in 2000, 715 in 2002, 1217 in 2007, 1122 in 2008, 634 in 2009. The percentage of normospermic samples reduced gradually from 1995 to 1999 after that it persisted in a stable line. It was noted that the percentage of oligoastoteratozoospermic samples (OAT) was increased, despite a reduction in teratozoospermies in 2004, it steadily started to increase again in 2007, and the the percentage of azoospermic sample continued at the same level. Of 6780 patients 35% normospermic, 4% azoospermic and 57% teratozoospermic distribution were noticed.

**Conclusion:** The number of semen analysis and the number of patients that were referred to andrology laboratory for semen analyses regularly increased every year. The explanation of this increase was associated with the change of the Social Security coverage rules (SGK). First reduction and than steady levels of normospermia and the increase of OAT and teratozoospermia, could be associated with intrauterine insemination which is increasingly performed in our unit and assisted reproductive techniques (ART).

**Key words:** andrology, infertility, spermogram

*Journal of Turkish Society of Obstetrics and Gynecology, (J Turk Soc Obstet Gynecol), 2012; Vol: 9 Issue: 1 Pages: 65- 9*

## BİR EĞİTİM HASTANESİ ANDROLOJİ LABORATUARINDA 15 YILLIK SEMEN ANALİZ SONUÇLARI

### ÖZET

**Amaç:** 15 yıllık bir süreçte infertilite polikliniğinden androloji laboratuvarımıza refere edilen infertil çiftlerden erkek hastaların semen değerlerinin gösterdiği değişikliklerin ve tanımların irdelenmesi.

**Gereç ve yöntemler:** Ocak 1995- Temmuz 2009 arasında, S.B. Bakırköy Kadın Doğum ve Çocuk Hastalıkları Eğitim ve Araştırma Hastanesi İnfertilite Bölümü Androloji laboratuvarına gelen 6780 erkek hastaya ait 9327 semen analizi incelendi. 2000'den önce yapılan analizler World Health Organization (WHO) 1992, 2000-2009 arası yapılanlar ise

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Received: 21 April 2011, revised: 28 October 2011, accepted: 31 October 2011, online publication: 08 December 2011

WHO 1999 manueline göre değerlendirildi. Morfoloji ise Kruger-strict kriterlerine göre değerlendirildi. Laboratuarda tüm analizler IVF sertifikalı tek doktor tarafından yapıldı.

**Bulgular:** 9327 analizin yıllara göre dağılımı: 1995 yılında 293 analiz, 2000 yılında 492, 2002 yılında 715, 2007 yılında 1217, 2008 yılında 1122, 2009 yılında 634 olarak bulundu. Normosperminin 1995'ten itibaren giderek azaldığı ve 1999 dan itibaren belli bir çizgide kaldığı görüldü. Oligoastenoteratozoospermi (OAT) sayısının giderek arttığı, teratozoospermilerde 2004 yılında bir azalma olmasına karşın 2007 de tekrar artmaya başladığı ve düzenli arttığı, azosperminin aynı düzeyde devam ettiği görüldü. 6780 hastada % 35 normospermi, % 4 azospermi, % 57 teratozoospermi dağılımı dikkati çekti.

**Sonuç:** Ünitimize müracaat eden hasta ve analiz sayıları düzenli artış gösterdi. Bu artış kliniğimize, laboratuvarımıza olan güven ve Sosyal Güvenlik Kurumu (SGK) uygulamaları ile ilintilendi. 1995-2000 arasında normosperminin azalıp sonra sabit kalması ve OAT ile teratozoospermide artış; erkek infertilite hastalarının daha fazla başvurmasına, ünitimizin intrauterin inseminasyon (İÜİ) uygulamalarına ve yardımcı üreme tekniklerinin (ÜYT) yaygın kullanılmasına bağlanabilir.

**Anahtar kelimeler:** androloji, infertilite, spermioqram

*Türk Jinekoloji ve Obstetrik Derneği Dergisi, (J Turk Soc Obstet Gynecol), 2012; Cilt: 9 Sayı: 1 Sayfa: 65- 9*

## INTRODUCTION

Around the world about one sixth of couples are infertile. Male infertility is the cause of infertility in nearly half of the couples<sup>(1)</sup>. That is the reason why the semen analysis is the main investigation and follow-up tool in the infertile couples.

We analyzed the distribution of number of the semen analysis, the changing parameters and the difference of the repeated analysis depending on the etiology and also the cause of these results in male partners of infertile couples referred by infertility clinic.

## MATERIAL AND METHODS

Between January 1995 and July 2009 (at 1997 only 3 months), 9327 semen samples of 6780 male patients were retrospectively analyzed at Bakırköy Maternal and Children's Health Education and Research Hospital, Department of Infertility Andrology Laboratory. Before the analysis, permission was taken from local ethic comity.

The male partner was instructed to abstain from ejaculation for 2 days prior to analysis. The specimen was produced by masturbation. Analysis made prior to 2000 were according to the World Health Organization (WHO) manual of 1992<sup>(2)</sup>, while those made after 2000 WHO manual of 1999<sup>(3)</sup>. Morphology was evaluated according to Kruger-Strict criteria<sup>(4)</sup>. The number of

the repeated analysis was changed between 1 to 7 according to the referral to the laboratory. All of semen analysis were performed by one doctor (MD PhD) who has a certification of ART laboratory.

For statistical analysis as a categorical variables frequency and percent values were given. Graphics were done at Excel programme.

## RESULTS

The age of the patients were between 16-59, and the mean age was 30.93. and the standart deviation was 5.34 Graph of annual distribution of 9327 semen analysis is seen at Graph 1.

According to the classification of semen analysis, number of annual distribution is shown at Table I.

The percentage of normospermic samples reduced gradually from 1995 to 1999 after that is persisted in a stable line. It was noted that the percentage of oligoasthenoteratospermic samples (OAT) was increased, despite a reduction in teratozoospermies in 2004, it steadily started to increase again in 2007, and the percentage of azospermic sample continued at the same level (Graph 2).

Of 6780 patients %35 normospermic, %4 azospermic %57 teratozoospermic (%20 teratozoospermi, %18 OAT, %12 teratozoospermi, %7 asthenoteratozoospermi) distribution were noticed. %1 oligoasthenozoospermi and %2 oligozoosperm i were the lowest results

(Graph3).

The most repeated analysis was done for the OAT as

%67. Asthenozoospermi was the second most repeated

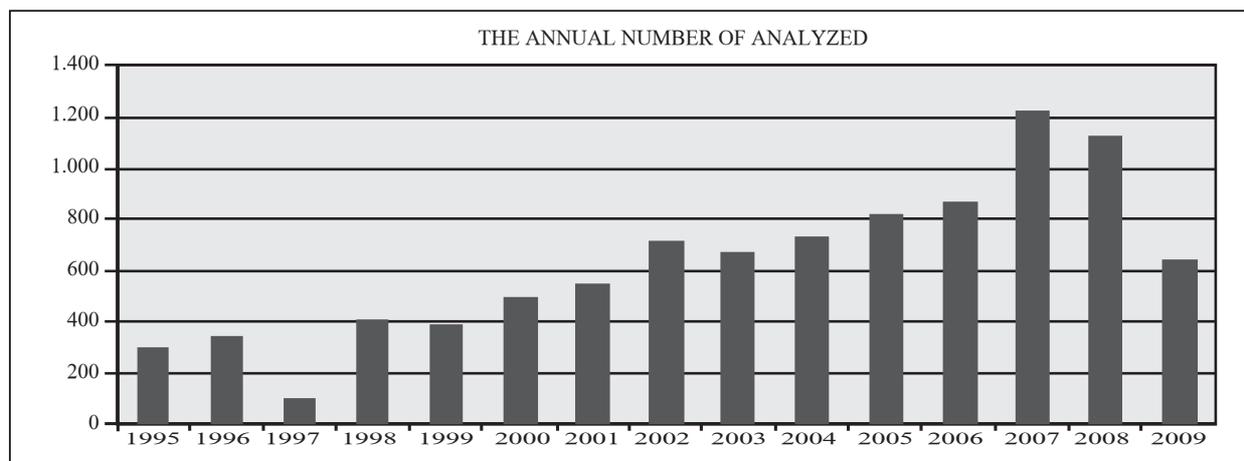
analysis with % 50. The lowest repeated analysis was

**Table 1:** The numerical distribution of the analysis according to their diagnosis.

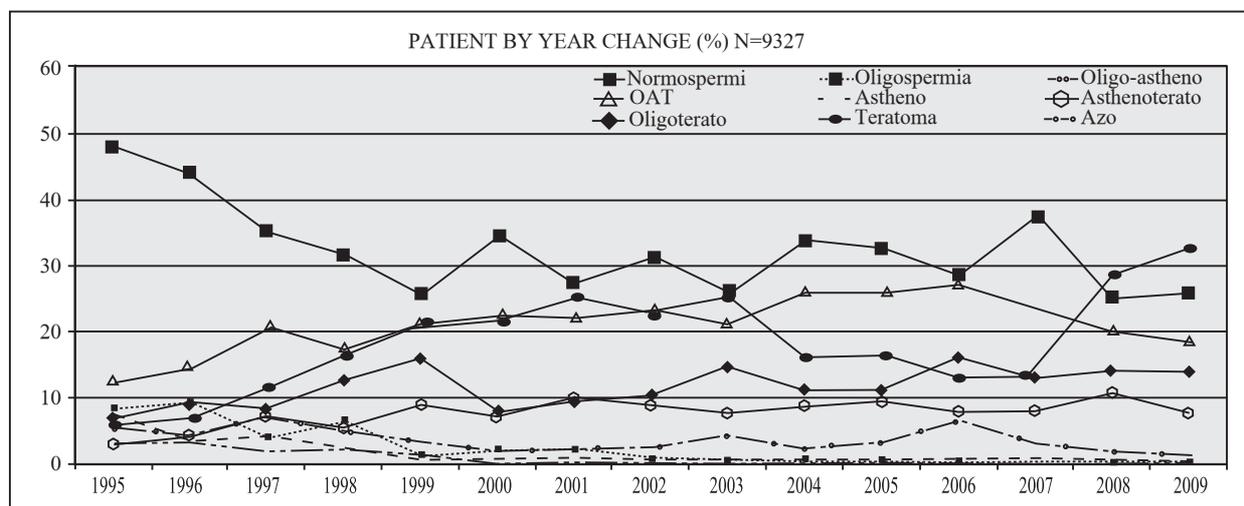
Annual Results	1995	1996	1997	1998	1999	2000	2001	2002
Normospermi	140	149	34	128	100	170	148	224
Oligospermia	25	32	4	27	6	11	13	6
Oligo-astheno	9	11	2	9	6	2	2	
OAT	36	50	20	70	82	110	122	165
Astheno	21	12	4	9	3	8	5	3
Asthenerato	9	15	7	22	34	36	54	63
Oligoterato	20	32	8	51	61	38	51	73
Teratoma	17	23	11	66	81	107	136	163
Azo	16	15	7	21	13	10	13	18

Annual Results	2002	2003	2004	2005	2006	2007	2008	2009
Normospermi	224	174	247	265	248	454	281	164
Oligospermia	6	1	7	5	5	10	1	2
Oligo-astheno		3	1					
OAT	165	143	191	215	235	295	223	116
Astheno	3	1	5	3	1	3		1
Asthenerato	63	51	64	77	68	97	118	49
Oligoterato	73	99	81	91	139	158	157	87
Teratoma	163	169	117	135	112	160	320	207
Azo	18	29	18	27	58	40	22	8

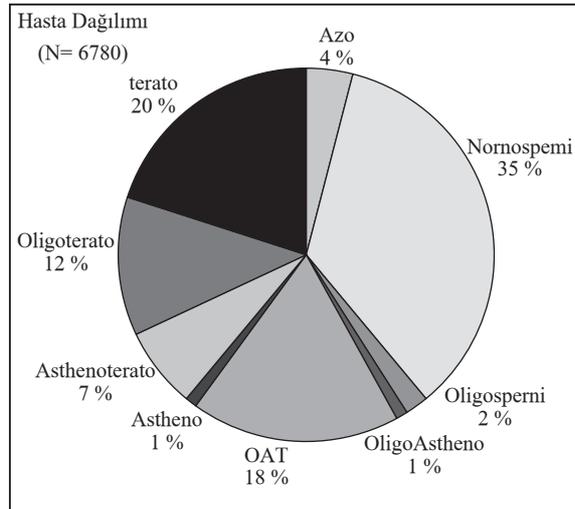


**Graph 1:** The distribution of the number of semen analysis by year.



**Graph 2:** % Distribution of the analysis according to their diagnosis.

asthenozoospermi with %5 and then oligozoospermi with% 13 (Graph 4).



Graph 3: % Distribution of patients according to their diagnoses.

### CONCLUSION

Annual number of semen analysis regularly increased every year except 1997 and 2009. In 1997 only one embryolog was working for 3 months and in 2009 only 6 months semen analysis could be done. The increase is seen especially after infertility unit has been active since 2002 (Graph 1). The increase of the number of the staffs and thenumber of IUI were related to this increase. Social Security Rules were changed and gave the chance of 3 IUI Cycles so that the number of the patients and the number of the analysis were increased. According to the 9327 analysis after 1995 normospermi was decreased and after 1999 it was steady (Graph

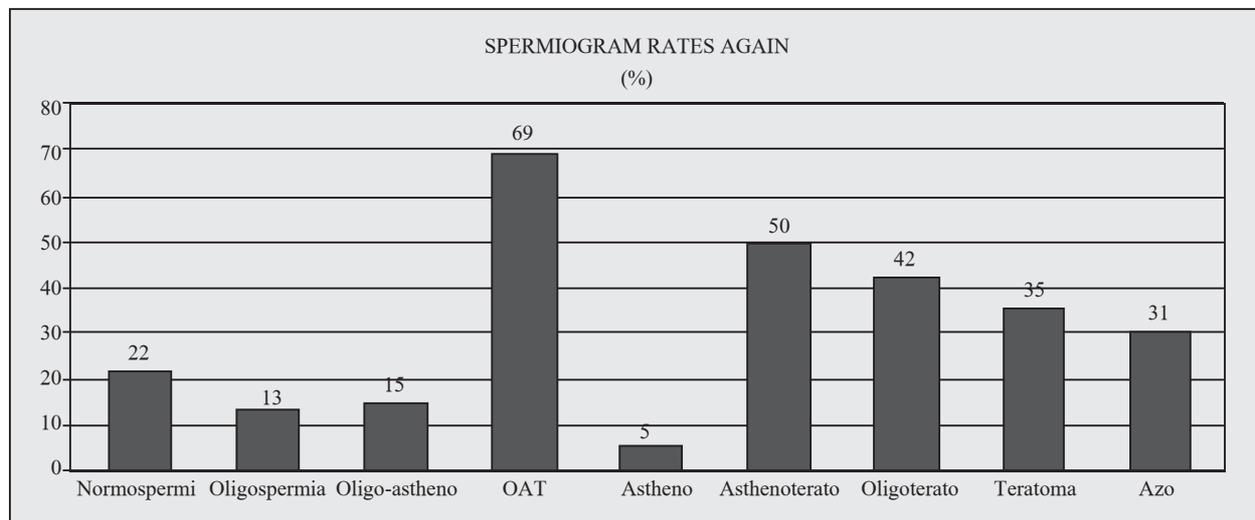
2). The number of OAT steadily increased, teratozoospermi decreased at 2004 and increased at 2007 and there after. The increase of OAT and teratozoospermi can be related to our being a reference hospital, pregnancy rates of our clinic by the help of our andrology laboratory and the need of IUI cycles before ART. Azoospermi was at the same level.

The incese and then stable line of oligoteratozoospermi and asthenoteratozoospermi can be related to interaction of the other pathologic parameters.

The most repeated analysis was done for the OAT as %67(Graph 4). For normospermic, oligospermic, astenospermic patients mostly IUI is done and then total motile sperm count can be achieved. For OAT patients the treatment cycle can be changed according to the results so the frequent analysis is needed. In our country there are some published data about cytogenetic analysis<sup>(5,6)</sup>, spermatozoon morphology<sup>(7)</sup> and semen parameters<sup>(8)</sup> of male infertility, but the prevalance and the incidence of semen parameters are few or absent. Our study is done about this topic and covers a huge number of patients so that it can be a good data for male infertility.

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Graph 4: Analysis of rates of recurrence.

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