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Help Wanted; Sperm donation in the era of ICSI

VNIVERSITAT ID VALÈNCIA

Sperm Donation



✓ *Is defined as the altruistic gift of the male gametes from an anonymous man to help single women and couples to procreate.*

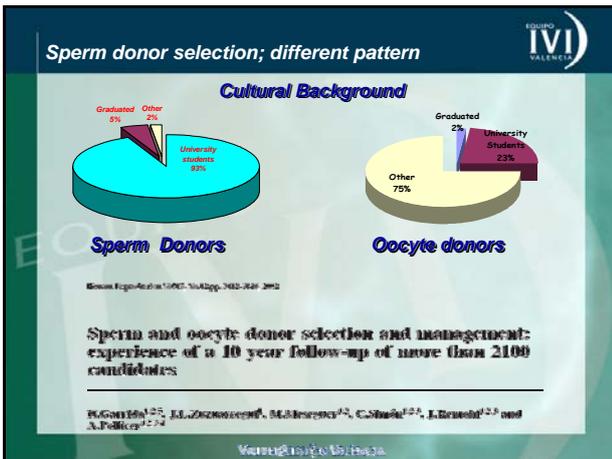


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Sperm donor selection; a safe option?

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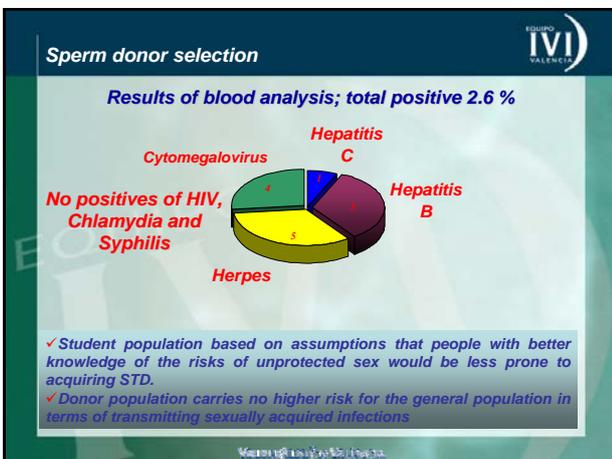


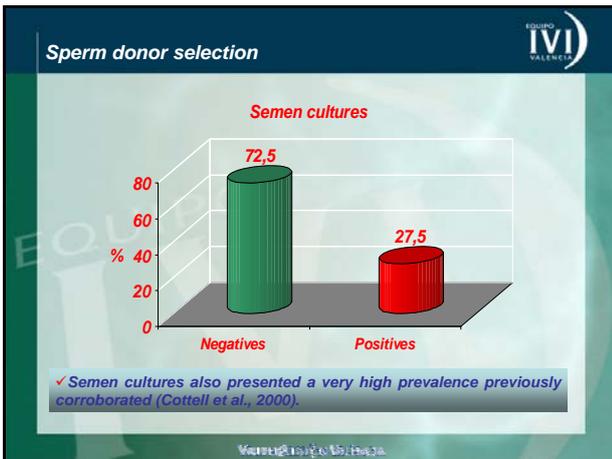
Sperm donor selection

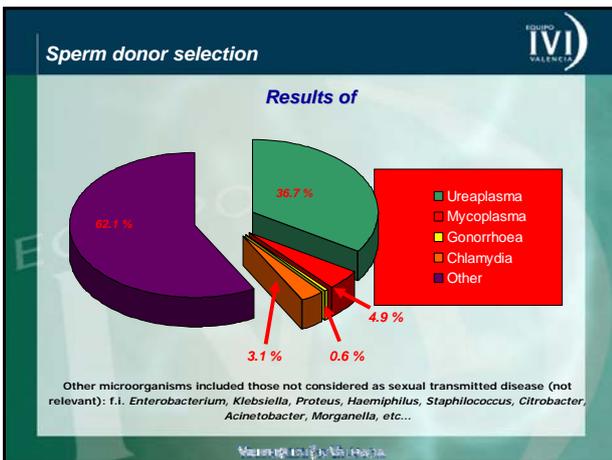
Sperm Donor serology
(Spanish assisted reproduction law obliged)

Blood type and Rh
Human immunodeficiency virus
Syphilis
Hepatitis B virus
Hepatitis C virus
Herpes simplex virus
Cytomegalovirus
Microbiological semen cultures (Chlamydia trachomatis and Neisseria gonorrhoeae)

IVIR





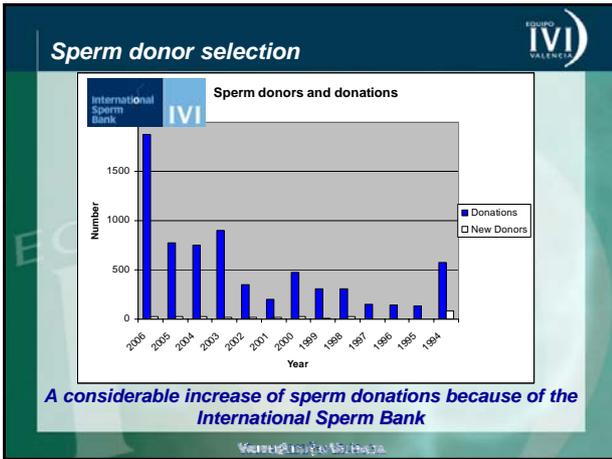


Sperm donor selection EQUIPO IVI VALENCIA

✓ Many micro-organisms found in the semen samples are non-pathogenic, probably due to an inadequate manner of sample recovery (*Klebsiella* spp., *Proteus* spp., *Haemophilus* spp., *Citrobacter* spp., etc.) (Cottell et al., 2000).

✓ Since we do not perform the microbiological tests in all the samples, undoubtedly some positive samples for microbiological cultures must have been inadvertently used without causing any clinical consequences.

✓ It is impossible to analyze every sample; the preparatory techniques together with the presence of a wide spectrum antibiotics in the media used for IVF should eliminate these micro-organisms even reducing their presence by 95% (Steyaert et al., 2000) this frequency of analysis (bimonthly) in the donors should, we believe, be safe enough.



<http://www.bancode semeninternacional.net/>

International Sperm Bank (IVI) logo and navigation links: Home, Contact, Privacy policy, Site map, Help for...

Introduction, Our service, Donor selection, Results to be expected, Who can request samples?, Request for samples, List of donors, Prices/Donation, Donations, Other options, Questions frequently asked, How to become a donor, Information concerning selection, Our experience, All About us, Professionals, Our clinics and laboratories.

List of donors
Our website contains an updated list of available donors with a description of some personal characteristics and the country where they are located. The Spanish National Reproductive Act.

Answers to frequently asked questions
How is the donor chosen?
Can the donor learn my identity or vice versa?

International Sperm Bank (IVI) - Instituto Universitario de Valencia (España)

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Clinical indications of Sperm donation

Historical indications to employ donated sperm 

Basically, they can be divided into:

No sperm available

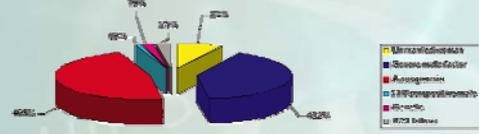
- ✓ Women without male partners.
- ✓ Ejaculatory dysfunction.
- ✓ Azoospermia, necrozoospermia in the male partner.

Alive, motile sperm available for assisted reproduction treatments

- ✓ Repeated IVF/ICSI failure.
- ✓ Paternal transmission of genetic defects.
- ✓ Sexually transmitted infections (HIV).

Verónica Rodríguez Rodríguez

Indications; classical distribution IUI 



Revista de Medicina Reproductiva y Fertilidad, Vol. 27, No. 2, Agosto 2005 (4/2005)

Medicine To Fertility

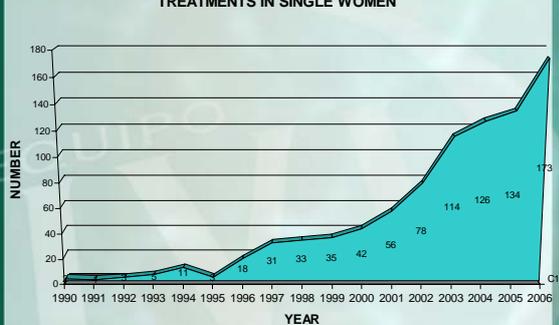
Parameters Affecting the Results in a Program of Artificial Insemination With Donor Sperm. A 12-Year Retrospective Review of More Than 1500 Cycles

J. L. Domercq^{1,2}, B. Morera¹, B. Giménez¹, C. Sureda^{1,2}, A. Pellicer^{1,2} and J. Bordeu^{1,2}

Verónica Rodríguez Rodríguez

Women without male partner 

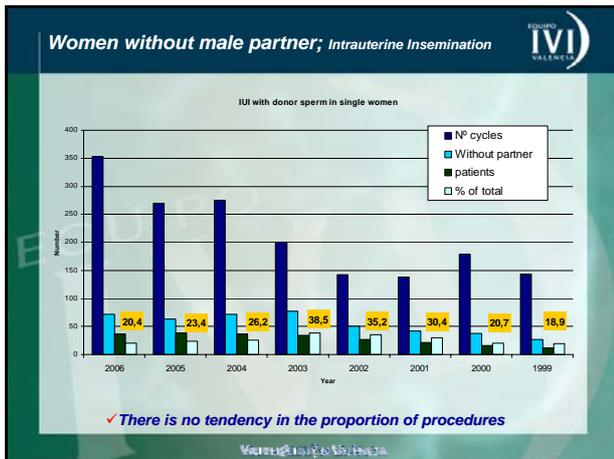
TREATMENTS IN SINGLE WOMEN

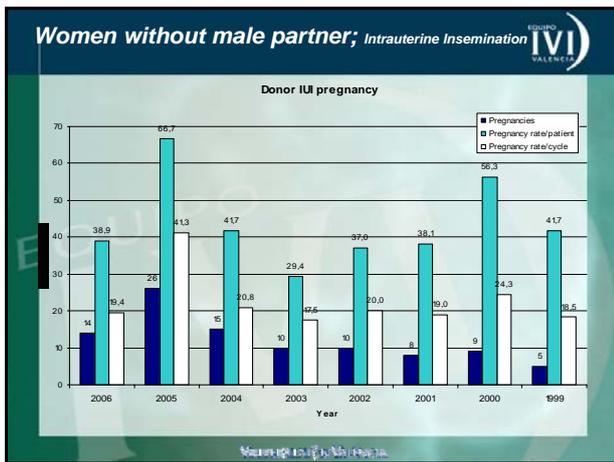


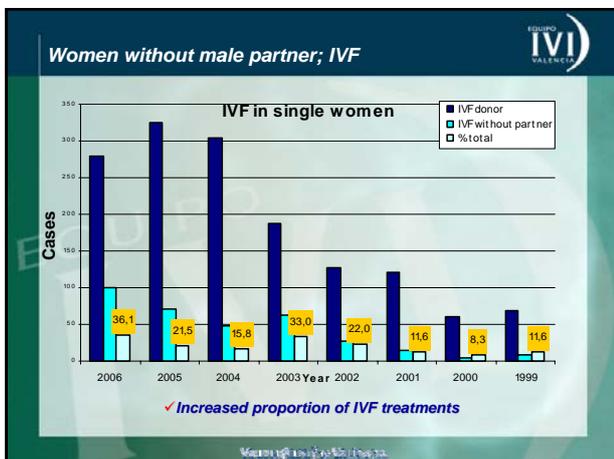
YEAR	NUMBER
1990	0
1991	0
1992	0
1993	0
1994	11
1995	0
1996	18
1997	31
1998	33
1999	35
2000	42
2001	56
2002	78
2003	114
2004	126
2005	134
2006	173

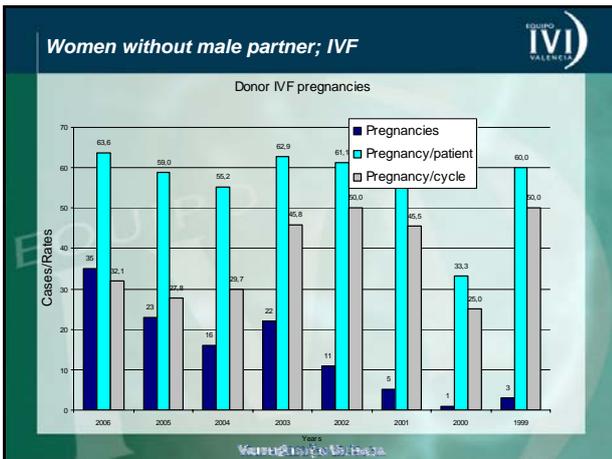
✓ Apparent increase in the number of treatments

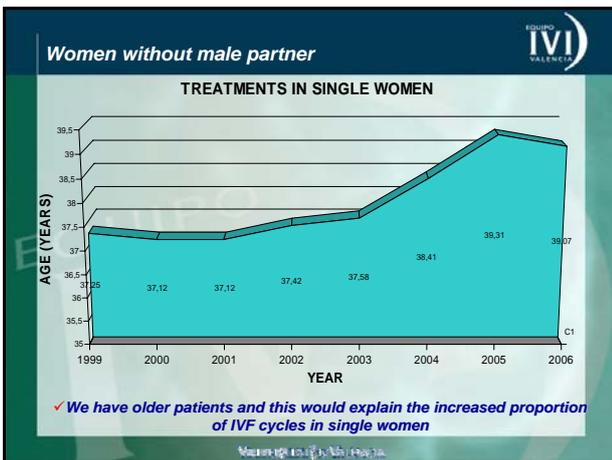
Verónica Rodríguez Rodríguez











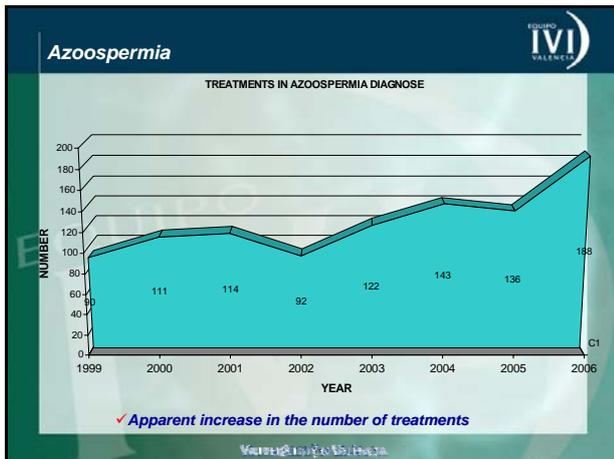
Ejaculatory dysfunction

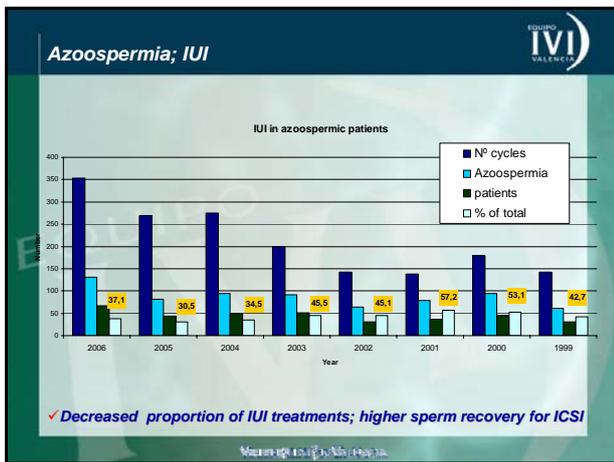
Retrograde Ejaculation

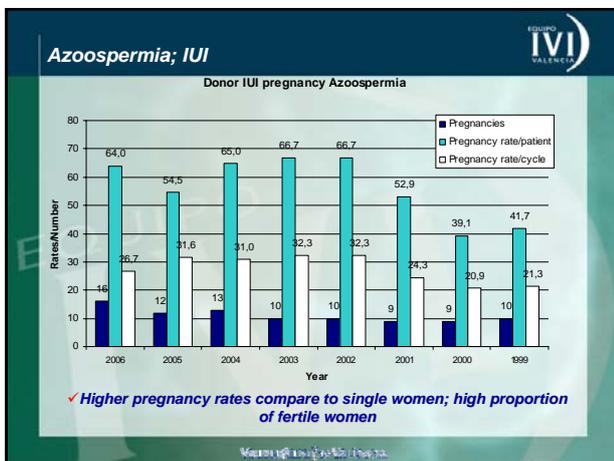
- ✓ This problem is easily solvable, just by alkalinizing the urine and obtaining motile spermatozoa to be frozen or employed in assisted reproduction techniques.
- ✓ Briefly, 2-3 doses of bicarbonate the night before and the same morning when the sperm are going to be obtained, masturbate and ejaculate, recover the next urine

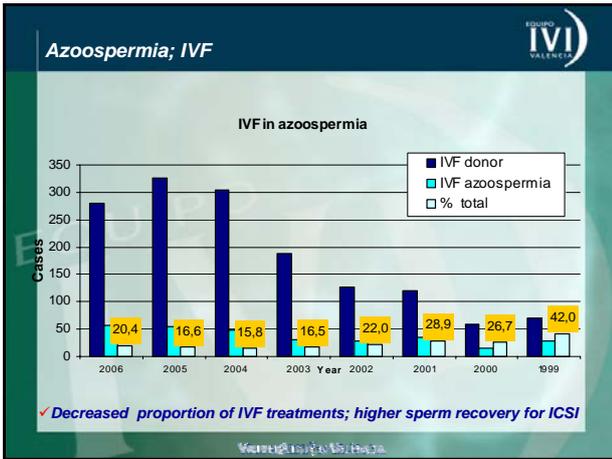
Impotence and/or anejaculation

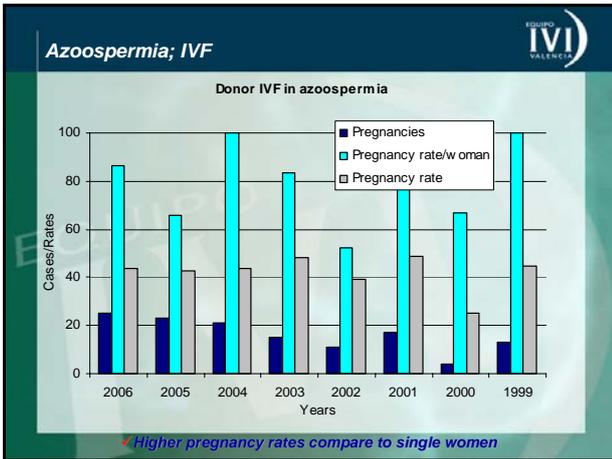
- ✓ Actually, it can be treated either by the administration of specific pharmacological treatments, such as Viagra. If no sperm is recovered opened testicular biopsy or epididymal aspiration could be performed to obtain sperm.

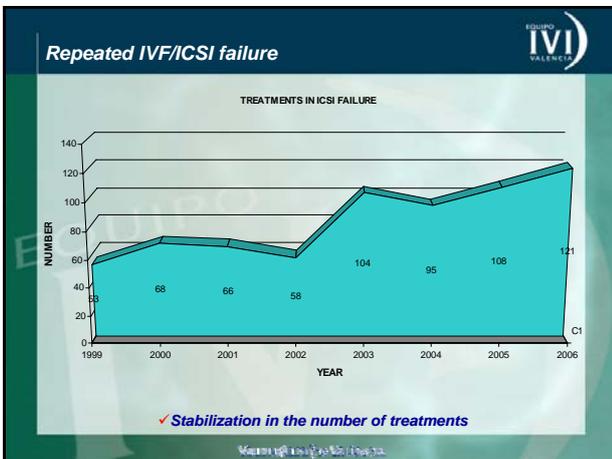


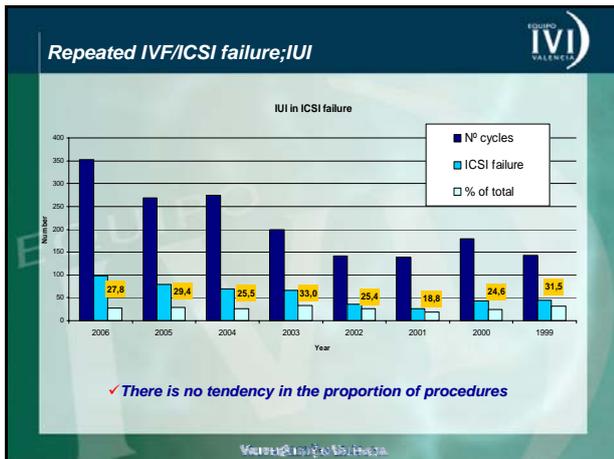


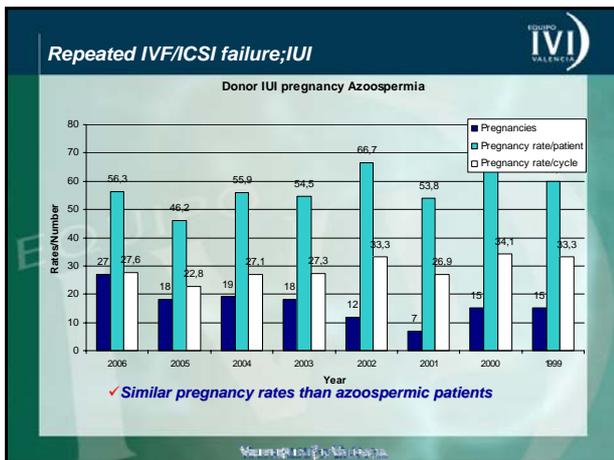


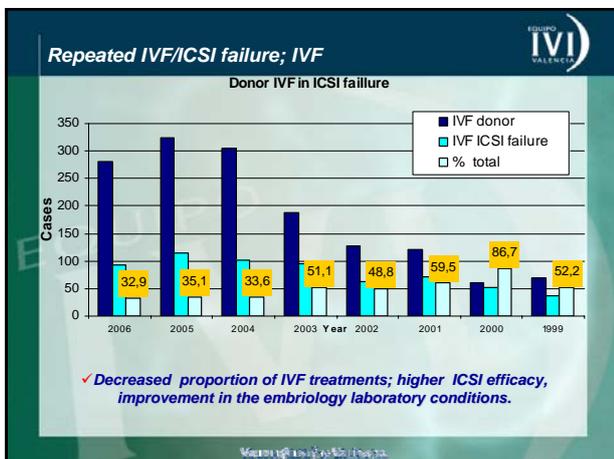


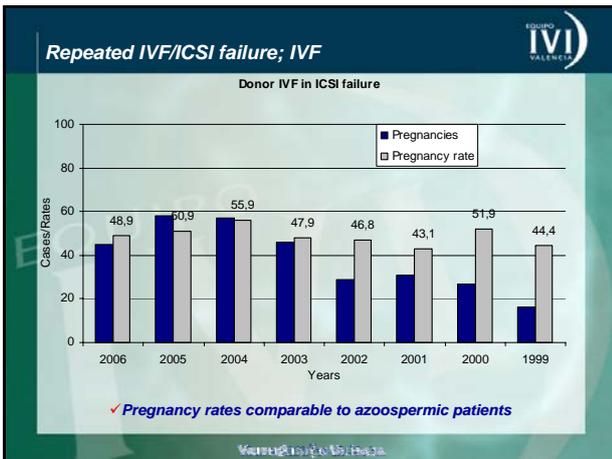












Repeated IVF/ICSI failure; indication for donor sperm change; DNA FRAGMENTATION

- ✓ The degree of DNA fragmentation was inversely correlated with fertilization rate, embryo ability to achieve blastocyst stage, and embryo morphological quality.
- ✓ There were no correlation between sperm DNA fragmentation and pregnancy outcome in IVF
- ✓ We have pregnancies with more than 80% of DNA fragmentation

Fertility and Sterility® Vol. 85, No. 2, February 2006

Value of the sperm deoxyribonucleic acid fragmentation level, as measured by the sperm chromatin dispersion test, in the outcome of in vitro fertilization and intracytoplasmic sperm injection

Lourdes Mariel, Ph.D.,^a Nicolás Garrido, Ph.D.,^b José Luis Fernández, M.D.,^c José Remohí, M.D.,^d Antonio Pellicer, M.D.,^{b,c} María José de los Santos, Ph.D.,^b and Marcos Meseguer, Ph.D.^b

Repeated IVF/ICSI failure; indication for donor sperm change; DNA OXIDATION

- ✓ The determination of sperm DNA oxidation influencing embryo morphology has indicated the relevance of sperm contribution to embryo development.
- ✓ We observed a minor decrease of DNA oxidation in patients who did not achieve pregnancy, this could be due to embryo selection before transfer
- ✓ No association with pregnancy could be explained by the ability of the oocyte to fight against DNA oxidative damage or by the poor contribution of the sperm DNA to this issue.

CLINICAL ARTICLE

The significance of sperm DNA oxidation in embryo development and reproductive outcome in an oocyte donation program: a new model to study a male infertility prognostic factor

Marcos Meseguer, Ph.D.,^{a,b} J. A. Martínez-Conjovers, Ph.D.,^{a,b} J. Enrique O'Connor, Ph.D.,^c Antonio Pellicer, M.D.,^{a,b} José Remohí, M.D.,^{a,b} and Nicolás Garrido, Ph.D.^{a,b}

^a Instituto Valenciano de Infertilidad Valencia, Universidad de Valencia, ^b Fundación IVI, and ^c Unidad de Clínica, Centro de Investigación Diagnóstico, Valencia, Spain.

Sexually transmitted infections; HIV 

- ✓ *To date, sperm wash, nested PCR and ICSI is a safe and effective procedure that avoids HIV and HCV transmission with reasonable pregnancy rates, and is cost-effective.*

Reprod Biomed Environ Biotechnol 2014; 16(1): 27-32
doi:10.1007/s12026-013-9194-4

Report of the results of a 2 year programme of sperm wash and ICSI treatment for human immunodeficiency virus and hepatitis C virus serodiscordant couples

Nicolás González^{1,2,3}, Marcos Muroga^{1,2}, José Beltrán^{1,2}, José Remón^{1,2,3}, Carlos Simón^{1,2,3} and Antonio Pallares^{1,2,3}

¹Unidad de Reproducción, ²Unidad de Fertilidad, ³Unidad de Diagnóstico Molecular, Hospital General Universitario Valenciano, Valencia, Spain; ⁴Unidad de Reproducción, Hospital General Universitario Gregorio Marañón, Madrid, Spain

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Sexually transmitted infections; HIV 

- ✓ *Semen analysis, according to the WHO criteria, of HIV- and HCV-affected patients showed no differences from that of non-infected males.*
- ✓ *Low CD4 blood levels, and a long evolution of the disease do not negatively affect sperm quality.*

Reprod Biomed Environ Biotechnol 2014; 16(1): 23-26
doi:10.1007/s12026-013-9193-5

Semen characteristics in human immunodeficiency virus (HIV)- and hepatitis C (HCV)-seropositive males: prediction of the success of viral removal after sperm washing

Nicolás González^{1,2,3}, Marcos Muroga^{1,2}, José Beltrán^{1,2,3}, Carlos Simón^{1,2,3} and Antonio Pallares^{1,2,3}

¹Unidad de Reproducción, ²Unidad de Fertilidad, ³Unidad de Diagnóstico Molecular, Hospital General Universitario Valenciano, Valencia, Spain; ⁴Unidad de Reproducción, Hospital General Universitario Gregorio Marañón, Madrid, Spain

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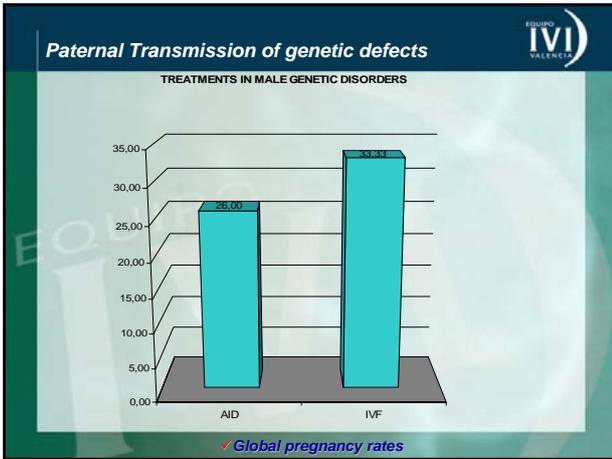
Sexually transmitted infections; HIV 

- ✓ *In a small percentage of HIV patients, it is impossible to recover spermatozoa after said procedures because of their highly impaired spermatogenesis.*
- ✓ *We have established that less rigorous methods, such as repeated centrifugation, yield nested polymerase chain-reaction HIV- and hepatitis C virus-negative specimens, even in sperm samples from men with severe oligoasthenozoospermia.*

The effectiveness of modified sperm washes in severely oligoasthenozoospermic men infected with human immunodeficiency and hepatitis C viruses

**Nicolás González, Ph.D.
José Remón, Ph.D.
Antonio Pallares, Ph.D.
Marcos Muroga, Ph.D.
Carlos Simón, Ph.D.
Reproducción y Fertilidad, Hospital General Universitario Valenciano, Valencia, Spain
04.05.14, 5 December 2013**

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Paternal Transmission of genetic defects

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- Chromosomal abnormalities; numerical and structural
- Y linked diseases
- Microdeletions; specially on Yq11; AZF (azoospermia factors).

Around 15% of the men with azoospermia are carriers of AZF microdeletions (specially on AZFc region)

PGD

PCR

Paternal Transmission of genetic defects

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Genetic diseases

- ✓ Monogenic
 - HEMOPHILIA A
 - ALPHERT'S SYNDROME
 - X FRAGIL SYNDROME
 - CISTIC FIBROSIS
 - NEUROFIBROMATOSIS Type 1
 - HUNTINGTON DISEASE
 - POLYDACTYLIS
 - MIOTONIC DISTROPHY
 - etc.....
- ✓ Sporadic Single Gene diseases without molecular study;
 - Neurofibromatosis 1
 - Osteogenesis imperfecta
 - Marfan Syndrome
 - Tuberous Sclerosis
- ✓ Oligogenic or Polygenic;
 - Cardiomiopathy
 - Diabetes
 - Retinosis pigmented

PGD-PCR

Sperm Donation

