

**CLINICAL DECISION
ALGORITHMS**
IN ASSISTED REPRODUCTION
HANDBOOK OF IVI PROTOCOLS

*José Remohí
Juan José Hidalgo
Juan Giles
José Bellver
Antonio Pellicer*

 **MOMENTO
MEDICO**

IVI)

IN ASSISTED

Authors

- **Pilar Alamá**
Gynaecologist, Donation Unit, Instituto Valenciano de Infertilidad, Valencia
- **Pilar Albero**
Gynaecologist, Donation Unit, Instituto Valenciano de Infertilidad, Valencia
- **Nasser Al-Assma**
Laboratory Manager, IviGen Miami, Miami
- **David Amorós**
Lab Manager, General & Andrology Laboratories, Instituto Valenciano de Infertilidad, Barcelona
- **Yanira Ayllón**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Las Palmas, Canary Islands
- **Agustín Ballesteros**
Gynaecologist, Managing Director, Instituto Valenciano de Infertilidad, Barcelona
- **Carlos Balmori**
Urologist, Male Health Unit, Instituto Valenciano de Infertilidad, Madrid
- **Saúl Barrera**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Panama
- **José Bellver**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Valencia
- **Alfonso Bermejo**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Madrid
- **Ernesto Bosch**
Medical Director, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Valencia
- **Pilar Buendía**
Embryologist, Laboratory PGD, Instituto Valenciano de Infertilidad, Valencia
- **Cinzia Caligara**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Sevilla
- **Gemma Castellón**
Medical Director, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Barcelona
- **María Cerrillo**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Madrid
- **Ana Cervero**
Laboratory Manager, PGD Molecular Genetics, Igenomix Valencia
- **Ana Cobo**
Embryologist, Cryopreservation Laboratory Director, Instituto Valenciano de Infertilidad, Valencia
- **Genevieve Coelho**
Gynaecologist, Reproductive Medicine Director, Instituto Valenciano de Infertilidad, Salvador de Bahia
- **Fabio Cruz**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Valencia
- **Gabriel de la Fuente**
Gynaecologist, Reproductive Medicine Unit, Instituto Valenciano de Infertilidad, Madrid
- **Arantxa Delgado**
Embryologist, Laboratory PGD, Instituto Valenciano de Infertilidad, Valencia
- **Santiago Díez Lázaro**
Gynaecologist, Endoscopy Surgery Unit, Hospital de Cruces, Bilbao
- **Javier Domingo**
Gynaecologist, Managing Director, Instituto Valenciano de Infertilidad, Las Palmas, Canary Islands
- **Roberto Epifanio**
Gynaecologist, Managing Director, Instituto Valenciano de Infertilidad, Panama

©2014 Momento Medico srl.

Momento Medico, Srl.
Via Torre Risaie, 13, 84131-Salerno (Italia)

E-mail: info@momentomedico.es

ISBN - 11 14

This book and the scientific information it contains are intended to be of service to the medical profession. The contents and opinions presented by the different authors are their property. Some of the references may name medicinal products that are not currently marketed and/or contain information that is not in complete accordance with health authority-approved fact sheets, which is why we advise and recommend that **fact sheets** be consulted.

The authors and publisher have taken extreme care during the editorial process. However, they are not responsible for any errors or omissions in the contents of this book.

All rights are reserved. Reproduction in whole or part is prohibited without the written consent of the publisher.

ISBN: 98-83620-249-0

• **Laura Privitera**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Valencia

• **José Mannel Puente**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Madrid

• **Guillermo Quea**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Bilbao

• **Susana Rabadán**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Zaragoza

• **José Ramírez**

Gynaecologist, Surgery Unit Instituto
Valenciano de Infertilidad, Valencia

• **José Remohí**

Gynaecologist, Professor of Obstetrics
& Gynaecology, School of Medicine,
Universidad de Valencia, Valencia
President of Instituto Valenciano
de Infertilidad, IVI

• **Antonio Requena**

Gynaecologist, Managing Director, Instituto
Valenciano de Infertilidad, Madrid

• **Mannel Rodríguez**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Castellón

• **Lorena Rodrigo**

Lab Manager, PGD Molecular
Cytogenetics, Igenomix, Valencia

• **Carmen Rubio**

Head of PGD Molecular Cytogenetics,
PGD Molecular Cytogenetics,
Igenomix, Valencia

• **Anabel Salazar**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Sevilla

• **Imma Sánchez Ribas**

Gynaecologist, Reproductive Medicine
Unit, Instituto Valenciano de
Infertilidad, Barcelona

• **Xavier Santamaria**

Gynaecologist, Reproductive Medicine
Unit, Instituto Valenciano de
Infertilidad, Barcelona

• **José Serna**

Gynaecologist, Managing Director, Instituto
Valenciano de Infertilidad, Zaragoza

• **Patricia Siesto**

Gynaecologist, Reproductive Medicine Unit,
Instituto Valenciano de Infertilidad, Vigo

• **Sérgio R. Soares**

Gynaecologist, Managing Director, Instituto
Valenciano de Infertilidad, Lisboa

• **Eva Solá**

Endocrinologist, Endocrinology Unit,
Hospital Dr. Peset, Valencia

• **Antonia Tocino**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Sevilla

• **Carlos Trancoso**

Gynaecologist, Managing Director, Instituto
Valenciano de Infertilidad, Chile

• **Vanessa Vergara**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Madrid

• **Carmen Vidal**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Valencia

• **José María Vila-Vives**

Gynaecologist, Reproduction &
Gynaecology Unit, Hospital
Universitario La Fé, Valencia

• **Genevieve Coelho**

Gynaecologist, Managing Director,
Instituto Valenciano de
Infertilidad, Salvador de Bahia

• **Raffaella Piancatelli**

Gynaecologist, Reproductive
Medicine Unit, Instituto Valenciano
de Infertilidad, Valencia

Contents

Chapter 1. Initial evaluation of infertility	1
<i>Agustín Ballesteros, Alexandra Izquierdo, José Remohí</i>	
Chapter 2. Semen assessment	5
<i>Jose María Martínez-Jabaloyas, Manuel Gil-Salom</i>	
Chapter 3. Andrological assessment	9
<i>Carlos Balmori</i>	
Chapter 4. Male factor: medical treatment	13
<i>Cristina Ferrandis, José M^a Martínez Jabaloyas</i>	
Chapter 5. Male factor: surgical treatment	17
<i>José María Pomerol, Juan José Hidalgo</i>	
Chapter 6. Cervical factor and sterility	21
<i>Yanira Ayllón, Javier Domingo, José Remohí</i>	
Chapter 7. Congenital malformations: diagnosis	25
<i>José Manuel Puente, Gabriel de la Fuente, Juan José Hidalgo, Juan Giles</i>	
Chapter 8. Congenital malformations: treatment	29
<i>Jaime Ferro, Juan José Hidalgo</i>	
Chapter 9. Myomas and reproduction	33
<i>Francisco Javier Martínez-Salazar, José Remohí</i>	
Chapter 10. Adenomyosis and reproduction	37
<i>Francisco Javier Martínez-Salazar, José Remohí</i>	
Chapter 11. Endometrial polyps	39
<i>Vanessa Vergara, Eduardo Goyri, Antonio Pellicer, José Remohí</i>	
Chapter 12. Uterine synechiae: Asherman's syndrome	43
<i>Saúl Barrera, Mayka Morgan, Roberto Epifanio, Juan José Hidalgo</i>	
Chapter 13. Defective endometrial growth	47
<i>Elisa Gil, José Serna</i>	
Chapter 14. Tubal factor: diagnosis	49
<i>Cinzia Caligara, Antonia Tocino</i>	
Chapter 15. Tubal factor: treatment	53
<i>José Ramírez, Jaime Ferro, José Remohí, Juan Giles</i>	
Chapter 16. Hydrosalpinx	57
<i>María José Martínez-Cañavate, Guillermo Quea, José Remohí</i>	
Chapter 17. Ovarian factor (I): assessment of ovarian function	61
<i>Gemma Castellón, Juan José Hidalgo</i>	
Chapter 18. Ovarian factor (II): amenorrhoea	65
<i>Marcos Ferrando, Elena Labarta, Roberto Matorras</i>	
Chapter 19. Ovarian factor (III): premature ovarian failure	69
<i>María Cerrillo, José Remohí</i>	
Chapter 20. Polycystic ovary syndrome: diagnosis	73
<i>Antonio Requena, Alfonso Bermejo, Gabriel de la Fuente</i>	
Chapter 21. Polycystic ovary syndrome: treatment	77
<i>Sara Fortuño, Jose Remohí</i>	
Chapter 22. Hirsutism and virilisation	81
<i>Laura Privitera, Gilda Patria, Luisa Loudice, Silvia Bartoluci, José Remohí</i>	
Chapter 23. Endometriosis (I): diagnosis	85
<i>Graciela Kohls, Juan Antonio García Velasco</i>	

Chapter 24. Endometriosis (II): medical treatment	89
<i>Alfredo Guillén, Javier Martínez-Salazar</i>	
Chapter 25. Endometriosis (III): surgical treatment	93
<i>Juan José Hidalgo, José María Vila-Vives</i>	
Chapter 26. Endocrinopathies that affect reproduction (I): hyperprolactinaemia	97
<i>Carlos Morillas, Antonio Pellicer, José Remohí</i>	
Chapter 27. Endocrinopathies that affect reproduction (II): congenital adrenal hyperplasia	101
<i>Carlos Morillas, Eva Solá, Ana Jover</i>	
Chapter 28. Endocrinopathies that affect reproduction (III): thyroid dysfunction	105
<i>Carlos Morillas, Eva Solá, Ana Jover</i>	
Chapter 29. Infections and reproduction (I): hepatitis B	109
<i>Juan Giles, Carmen Vidal, José Bellver</i>	
Chapter 30. Infections and reproduction (II): hepatitis C	113
<i>Juan Giles, Carmen Vidal, José Bellver</i>	
Chapter 31. Infections and reproduction (III): HIV	117
<i>Juan Giles, Carmen Vidal, José Bellver</i>	
Chapter 32. Infections and reproduction (IV): syphilis	121
<i>Carlos López Feijoo, Juan José Hidalgo</i>	
Chapter 33. Infections and reproduction: Chlamydia trachomatis	125
<i>Carlos López Feijoo, Juan José Hidalgo</i>	
Chapter 34. Sterility of unknown origin	129
<i>Manuel Rodríguez, Antonio Pellicer</i>	
Chapter 35. Implantation failure	133
<i>Anabel Salazar, José Bellver, Manuel Fernández-Sánchez</i>	
Chapter 36. Endometrial Receptivity Array (ERA)	137
<i>Maria Ruiz, David Blesa, Eva Gómez, Alejandro Rincón, Carlos Simón</i>	
Chapter 37. Recurrent miscarriage	141
<i>José Bellver, Juan Giles, José Remohí</i>	
Chapter 38. Obesity and reproduction	145
<i>José Bellver, Juan Giles, Laura Privitera, José Remohí</i>	
Chapter 39. Reproduction techniques (I): ovulation induction and scheduled intercourse	149
<i>Rafaela González, Juan José Hidalgo</i>	
Chapter 40. Reproduction techniques (II): artificial insemination with partner's semen	153
<i>Imma Sánchez, David Amorós, Gemma Castillón, Silvia González, Agustín Ballesteros</i>	
Chapter 41. Reproduction techniques (III): artificial insemination with donor sperm	157
<i>Susana Rabadán, José Remohí</i>	
Chapter 42. Reproduction techniques (IV): IVF-ICSI	161
<i>Carmen Vidal, Juan Giles</i>	
Chapter 43. Assisted reproduction techniques (V): oocyte donation	165
<i>Laura Privitera, Gilda Patria, Ana Cobo, José Remohí</i>	
Chapter 44. Donor selection	169
<i>Fabio Cruz, Juan José Hidalgo, José Remohí</i>	

Chapter 45. Donor-recipient synchronisation	173
<i>Pilar Alamá, José Remohí</i>	
Chapter 46. Pre-implantation genetic screening	177
<i>Carmen Rubio, Lorena Rodrigo, Amparo Mercader, Emilia Mateu, Pilar Buendía, Vanessa Peinado, Miguel Milan, Arantxa Delgado, Pere Mir, Laura Escrich, Nasser Al-Assmar, José Remohí</i>	
Chapter 47. Pre-implantation genetic diagnosis	181
<i>Julio Martín, Ana Cervero, Juan José Hidalgo</i>	
Chapter 48. Indications for oocyte vitrification	183
<i>Ana Cobo, Jose Remohí, Juanjo Hidalgo</i>	
Chapter 49. Natural cycle	187
<i>Ernesto Bosch, Elena Labarta</i>	
Chapter 50. Oocyte aspiration in assisted reproduction	191
<i>Manuel Muñoz, Noemí Galindo</i>	
Chapter 51. Embryo transfer	195
<i>Juan Giles, Mayka Morgan</i>	
Chapter 52. Preservation of fertility in women with cancer	199
<i>Javier Domingo, Juan José Hidalgo</i>	
Chapter 53. Preservation of fertility in men with cancer	203
<i>Silvia González-Juanmartí, Marga Esbert, David Amorós, Imma Sánchez-Ribas, Daniela Galliano</i>	
Chapter 54. ART complications (I): elevated serum progesterone	207
<i>Elena Labarta, Ernesto Bosch</i>	
Chapter 55. ART complications (II): diagnosis of ovarian hyperstimulation syndrome	211
<i>Elkin Muñoz, Patricia Siesto, Ginna Ortiz, Iria Fernández, Susana Portela, José Remohí</i>	
Chapter 56. ART complications (III): prevention of ovarian hyperstimulation syndrome.	215
<i>Catarina Godinho, Sérgio Reis</i>	
Chapter 57. ART complications (IV): treatment of ovarian hyperstimulation syndrome.	219
<i>Xavier Santamaria, Ernesto Bosch</i>	
Chapter 58. ART complications (V): prevention of multiple pregnancies	223
<i>Maria Nicolás, Laura Fernández, José Landeras</i>	
Chapter 59. ART complications (VI): diagnosis of ectopic pregnancy	227
<i>José Landeras, María Nicolás, Laura Fernández</i>	
Chapter 60. ART complications (VII): medical treatment of ectopic pregnancies	231
<i>Pilar Albero, Pilar Alama, Antonio Pellicer, José Remohí</i>	
Chapter 61. ART complications (VIII): surgical treatment of ectopic pregnancies	235
<i>Santiago Díez, Roberto Matorras</i>	
Chapter 62. ART complications (IX): ovarian torsion	239
<i>Carlos Troncoso, Antonio Pellicer, José Remohí</i>	
Chapter 63. ART complications (X): infection	243
<i>Eduardo Goyri, Juan José Hidalgo</i>	
Chapter 64. ART complications (XI): haemoperitoneum	247
<i>Bárbara Lotti, Natalia Fernandez Peri, Fernando Neuspiller</i>	