



BFS STUDY WEEK

19-22 June 2017

**Male Fertility
e-PROGRAMME**

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Millennium Gloucester Hotel, Kensington, London

www.bfsstudyweek.org.uk

@BritFertSoc @UKEmbryologists

FOREWORD

On behalf of the BFS I would like to welcome you all to *Study Week 2017*, which will be the largest one yet. Those of you who have been before will notice many changes. To accommodate our rapid growth, we have moved venue to the very pleasant Millennium Gloucester Hotel. To ensure that you have the latest up to date information and to make the event more 'green' and efficient we have gone 'paperless'.

We are delighted to have two new additional *Study Days* this year (*Fertility Nursing* and *PGD/PGS*) and there have been changes to some of the existing *Study Days* too, to ensure that you are getting the very best experience. I would like to thank the Speakers for taking time out of their busy schedules to come and teach at the event; as well as the sponsors who generously support our educational program.

I would particularly like to thank the delegates for coming, because you really make the event the success that it is. We hope that you all enjoy it and leave London with knowledge that will aid your personal development and the care of your patients. Please ask the speakers questions, we are here for you.

If you aren't already a BFS member, please consider joining and also, consider enrolling for the highly regarded *BFS Training Modules* that are linked to many of the *Study Days*. All the relevant details are on our website www.fertility.org.uk. Feel free to share your opinions on social media @BritFertSoc and @UKEmbryologists and do please complete the feedback form which will be sent to you after the event online, we want to know what you think.

Now, get ready, it's time to be educated!

All the very best wishes,



Kevin McEleny
Chair of Education and Training
British Fertility Society

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MALE FERTILITY PROGRAMME

CROMWELL ROOM 1

07.45 Registration, welcome refreshments, exhibition

08.55 Chair's opening welcome *Kevin McEleny*

09.00 The Male Reproductive tract and Male Sexual Function *Olly Kayes*

09.45 Male Reproductive Physiology *Allan Pacey*

10.30 Refreshments, exhibition and networking

11.00 Male history and examination *Kevin McEleny*

11.30 Female Infertility – basic assessment and management *Uma Gordon*

12.00 Testicular causes of Male Infertility *Herman Tournaye*

12.30 Lunch, exhibition and networking

13.30 Pre-Testicular Problems *Richard Quinton*

14.00 Post testicular causes of Male Fertility and reconstructive surgery *Majid Shabbir*

14.30 Investigating the Subfertile Man *Herman Tournaye*

15.00 Tests of semen quality *Bryan Woodward*

15.30 Refreshments, exhibition and networking

16.00 Surgical sperm retrieval *Kevin McEleny*

16.30 Varicoceles and male fertility *Majid Shabbir*

17.00 Case studies *Kevin McEleny*

17.30 Close of day and Networking

This Module has been accredited by the Royal College of Surgeons of England for up to 6.0 CPD points

MALE FERTILITY ABSTRACTS AND BIOGRAPHIES

The Male Reproductive tract and Male Sexual Function

Oilly Kayes

Key Learning Points:

1. Overview of male sexual dysfunction
2. Correct assessment of men with erectile dysfunction
3. Treatment options alongside traditional assisted conception techniques

Male infertility may correspond with increasing sexual dysfunction especially in ageing men. It is important to understand the common clinical features of men suffering from sexual dysfunction and to address the problem directly during consultations. Appropriate assessment and testing will allow focused treatment to improve function whilst optimising fertility status for these men. Finally, recognising complex sexual and functional issues will allow involvement of appropriate experts.

Oilly Kayes is currently appointed as a Consultant Urologist and Honorary Senior Lecturer at Leeds Teaching Hospitals. His specialist interests include: benign prostate conditions, male sexual dysfunction, infertility and reconstructive surgery. He completed his specialist surgical training in Cambridge and London; including a 2 year fellowship working with international experts at University College London Hospital. He was awarded the prestigious Hunterian Professorship in 2010 by the Royal College of Surgeons of England. He currently acts as reviewer for several international urology journals and is a faculty member of the F1000 research portfolio.

Male Reproductive Physiology

Allan Pacey

Key Learning Points:

1. Identify the components of the male reproductive system and how they work;
2. Understand the endocrine regulation of male reproductive system;
3. Highlight factors which influence the efficiency of spermatogenesis and ejaculate quality.

The embryological development of the male urogenital system is critical to the fertility of adult males and the six months either side of birth is thought to be the time at which the maximum sperm output of the adult testis is established. After puberty, the production of sperm is regulated by the secretion of FSH and LH from the hypothalamic pituitary axis, as well as paracrine factors from the testis itself.

In comparison to many other mammals the production of sperm in the human is quite slow, taking just over 70 days followed by further maturation steps in the epididymis.

The number and quality of sperm ejaculated depends on many factors including the abstinence period and the level of arousal as well as the quality of spermatogenesis itself. Spermatogenesis is affected by some lifestyle factors such as temperature (e.g. tight underwear), recreational drug use (e.g. cannabis) and occupation (e.g. exposure to glycol ethers). Finally, clinicians should be aware that sperm makes up only a minor part of the ejaculate (approximately 5% by volume), with secretions from accessory glands such as the prostate and seminal vesicles, among others.

Allan Pacey is Professor of Andrology at the University of Sheffield School of Medicine. He is also the Head of Andrology for Sheffield Teaching Hospitals. He is currently the chairman of the Steering Group for the UK National External Quality Assurance Scheme for Andrology and the Editor in Chief of the BFS journal Human Fertility. He was until January 2015 the Chairman of the British Fertility Society and served as BFS Secretary between 2005 - 2010. In the 2016 New Year's Honors list, he was awarded an MBE for Services to Reproductive Medicine.

MALE FERTILITY ABSTRACTS AND BIOGRAPHIES

Male history and examination

Kevin McEleny

Introduction History taking is a key aspect of the management of couples with a male fertility issue and whilst the patients are generally young and may not have any other relevant medical problems, pertinent factors can quickly be identified by appropriate questioning. Similarly, it is important that men with fertility problem are examined as it is not unusual to identify clinically relevant findings, which would contribute to the overall management of the patient as well as to identify other important conditions.

Abstract The presentation will cover the appropriate history to be taken from infertile men as well as what should be examined and why.

Key learning objectives This presentation will support the accompanying training module points 2i (Conduct a clinical consultation with infertile couples). 2ii (Take a medical history from infertile males) and 2iii (Perform a physical examination on infertile men including: Examination of testes, epididymides, vasa deferens and evaluation for the presence of varicoceles). The teaching will be in accordance with international guidelines

Kevin McEleny is a urologist at Newcastle Fertility Centre and has set up a specialist regional male fertility service. His research interests include Vitamin D and male infertility, psychosocial aspects of male infertility and genetic cause of male infertility. He has recently launched an Andrology Special Interest Group.

Female Infertility - basic assessment and management

Uma Gordon

Key Learning Points:

1. Awareness of basic management of female fertility
2. Understanding of the limitations and implications

Infertility, unlike many medical problems, is often an issue affecting both the male and female partners of a relationship. A thorough investigation of one partner alone may not lead to an understanding of the cause or causes involved. It is therefore necessary to have an assessment of both partners before diagnosing or treating the condition. It is now well established that female age is the most important determinant of success of any fertility treatment. Full and comprehensive history of both partners is necessary prior to any investigations, along with general advice on life style factors that can impact fertility. If the woman has regular periods, it can be assumed that she is ovulating most cycles. Basic blood tests like FSH, LH and E2 taken in the early follicular phase to confirm normal ovarian function/reserve have been surpassed by more recent tests such as Anti-Mullerian Hormone (AMH) or Antral Follicle Count (AFC) which can be measured at any stage of the cycle. The requirement for determining tubal patency by an invasive operative method such as laparoscopy is not always necessary. A diagnostic ultrasound scan can reassure the clinician of the normality of uterus and endometrial lining, along with ovarian assessment.

References: Nelson SM. Biomarkers of ovarian response: current and future applications, *Fertil Steril*, 2013, Mar 15;99(4):963-9. El hakim EA, Gordon UD, Akande VA. The relationship between serum Chlamydia antibody levels and severity of disease in infertile women with tubal damage, *Arch Gynaecol Obstet*, 2010, Apr;281(4):727- 33

Uma Gordon is a Consultant Gynaecologist and Subspecialist in Reproductive Medicine & Surgery. She is based at the Bristol Centre for Reproductive Medicine (BCRM), Southmead Hospital, Bristol, where she is the Lead for Assisted Reproduction Services. She is also Consultant Senior Lecturer at the University of Bristol, and Module Leader for the internationally reputed red-msc (MSc in Reproduction and Development, www.bristol.ac.uk/red-msc/). Mrs Gordon is the Subspecialty Programme Supervisor for Reproductive Medicine Subspecialty Programme at the Severn Deanery, Bristol and was the Clinical Director of the University of Bristol Centre for Reproductive Medicine, in 1997 & 2007. She has always been interested in male infertility, in particular, the management of azoospermia. She is also the Lead for Surgical Sperm Recovery service at BCRM, Bristol.

Testicular causes of Male Infertility

Herman Tournaye

Key Learning points:

1. Varicocele and its treatment remains a controversial issue
2. Testicular dysgenesis syndrome is associated with testicular failure
3. Genetic or epigenetic changes may explain unexplained testicular failure

Spermatogenesis can be disrupted both by chromosomal anomalies such as 47,XXY Klinefelter's syndrome and by gene mutations or deletions. A few non-genetic causes are more common: Cryptorchidism is a frequent congenital birth defect associated with a decrease in sperm count. Varicoceles are a known cofactor impairing sperm production. There is controversy on varicocele repair but metaanalyses conclude that it may be effective in men with subnormal semen analysis, a clinical varicocele and otherwise unexplained infertility. Mumps/viral orchitis, testicular torsion, gonadal malignancy, severe scrotal trauma may all be associated to a decline in sperm production. While some common medications may have adverse effects on sperm.

Herman Tournaye is full professor and since 2011 chairman of the department of Gynecology-Fertility in the university hospital of Brussels. In 1986, he graduated in as MD and obtained a PhD in 1994, both at the Vrije Universiteit Brussel. Trained as a gynecologist, he has a special interest in reproductive andrology. He authored more than 350 peer-reviewed papers, including > 50 as first and > 65 as last author. He teaches embryology and reproductive medicine and is coordinator of the Brussels training centres of the European Board and College for Obstetrics and Gynecology and the European Academy for Andrology.

Pre-Testicular Problems

Richard Quinton

Key Learning Points:

1. Men with hypogonadotropic hypogonadism (HH) have a hormonally-treatable form of infertility.
2. hCG-monotherapy only works in men with acquired disease, eg. post-pituitary surgery.
3. Combined FSH+hCG therapy, aiming for physiological testosterone, E2, FSH & HB levels, is required for men with congenital HH, of whom those with small testes & history of bilateral cryptorchidism have the worst prognosis.

Men with hypogonadotropic hypogonadism (HH) have a hormonally-treatable form of infertility. Acquired HH, eg. following treatment of pituitary tumours, has the best prognosis and fertility can often be restored with hCG-monotherapy, titrated to achieve normal of Hb, testosterone & E2 levels. FSH is added later on should monotherapy be unsuccessful. Men with congenital HH (CHH) have a less good prognosis and even prolonged hCG-monotherapy cannot achieve normal sperm counts, but combined hCG+FSH treatment or GnRH pump results in around 75-80% developing sperm in the ejaculate.

Key factors affecting fertility outcomes in CHH include testicular volume (TV) and history of cryptorchidism. Men with larger TV (>4mL) are good responders and typically develop sperm within 6-months of starting treatment. The most severe cases (TV ≤4 mL and history of bilateral cryptorchidism) have the poorest outcomes, but results of sequential treatment protocols with FSH pre-treatment offer hope for these men.

Richard Quinton is an internationally-recognised expert in the field of hypogonadotropic hypogonadism (HH) and, over the past 25 years, has contributed to significant advances in our understanding of both genetic and phenotypic aspects of this condition. He has achieved around 30 healthy live births using combined FSH+hCG treatment regimes that he has contributed to refining, wherein FSH- rather than classical hCG- pretreatment appears to offer improved outcomes for men with severe disease.

He has also published widely in the field of male and female sex hormone replacement therapy, including transgender and works closely with colleagues in Reproductive Medicine, Andrology, Paediatrics and Gender Dysphoria.

MALE FERTILITY ABSTRACTS AND BIOGRAPHIES

Post testicular causes of Male Fertility and reconstructive surgery

Majid Shabbir

Key Learning Points:

1. To be able to identify obstruction as the cause of the problem
2. To be able to pinpoint the location of the obstruction.
3. To be aware of the options, and the pros and cons of treatment options dependent on the nature of the underlying problem

Post Testicular causes of Infertility: Male infertility is a sign of an underlying problem, either with testicular function and spermatogenesis, or with delivery of sperm. Wherever possible any reversible cause for male infertility should be sought and corrected, to ideally allow a return to normal function. In this lecture we will explore causes of functional and structural obstruction of the sperm pathway, and understand how to pinpoint the level and nature of the underlying issue. The lecture will also cover the different treatment options and their outcomes.

Majed Shabbir is a Consultant Urologist at Guy's & St. Thomas' Hospital, where he is the Clinical Lead for Andrology, Male Infertility & Genito-urethral reconstruction. He completed his training with a 2 year fellowship at UCH, London, before starting his post at GSTT. He teaches on national training courses, is a member of a number of international faculties and has published widely in his field. He is an elected member of the BAUS Section of Andrology Executive Committee.

Investigating the Subfertile Man

Herman Tournaye

Key Learning Points:

1. Hormonal testing have a limited value
2. Genetic tests have an important role in work-up of azoospermia
3. DNA damage tests have currently no clinical role

Endocrine and genetic causes are less frequent causes for male infertility. A correct diagnosis of these infrequent causes is, however, important as endocrine causes are among the few that have a specific and successful treatment while genetic causes may have important consequences when performing assisted reproduction. Karyotype and Y chromosome microdeletions are indicated in men with respectively <10 millions or <5 spermatozoa/ml.

When a man presents with CBAVD, it is important to test him or at least his partner for CF mutations. Sperm DNA damage testing remains, even after more than 15 years, a matter of debate.

Biography: see page 6

Tests of semen quality

Bryan Woodward

Key Learning Points:

- 1) To understand the parameters of traditional tests of semen quality
- 2) To learn how to check whether the test results are reliable?
- 3) To be aware of more detailed tests of semen quality.

Tests of semen quality are usually undertaken as an initial investigation into male fertility. Traditional tests are often performed in a pathology laboratory, where basic macroscopic and microscopic assessments are undertaken. These include sperm count, morphology and motility, as all have been reported to be predictive of pregnancy. Beyond the basic repertoire, more detailed tests are available in a few specialist labs to provide further information about semen quality. For example, sperm can be processed, as it would for assisted conception treatments, to see if the quality can be improved. Further tests can then be performed immediately prior to insemination to help to select the best quality sperm. Detailed diagnostic tests are also available, such as sperm DNA integrity, immunohistochemistry, and karyotyping, which may also offer useful information. This talk will provide an overview of tests of semen quality that are available in the diagnosis of male fertility.

Bryan Woodward (PhD, FRCPath) is an international free-lance reproductive scientist who specializes in trouble-shooting fertility clinics to streamline and improve andrology and embryology services. He has helped set up IVF laboratories in Africa, Asia, the Caribbean and Europe, and offers hands-on andrology and embryology training as required. In the UK, he is the Person Responsible at X&Y Fertility, a new fertility clinic in Leicester specialising in male fertility, IUI and DI. Bryan is Chair of the Association of Biomedical Andrologists (ABA) and a member of the Editorial Board for the journal Human Fertility.

MALE FERTILITY ABSTRACTS AND BIOGRAPHIES

Surgical sperm retrieval

Kevin McEleny

Introduction Surgical sperm retrieval can be used to recover sperm directly from the testicles in situations where there is no sperm present in the ejaculate that is suitable for ICSI, and in nearly all cases, this means azoospermia. Developments in recent years have enabled sperm to be recovered in situations where previously, the couples would have been offered donor sperm treatment only. Patient selection is extremely important in this situation.

Abstract We will discuss the procedures used to recover sperm from men with obstructive and non-obstructive azoospermia, with outcomes.

Key learning objectives The trainees will understand the indications for surgical sperm retrieval and the techniques available (with indications). The presentation will accompany learning objectives 7i (trainee to observe surgical sperm retrieval for obstructive azoospermia and 7ii (Trainee to observe surgical sperm retrieval for non-obstructive azoospermia)

Biography: see page 5

Varicoceles and male fertility

Majid Shabbir

Key Learning Points:

1. To understand the controversy surrounding varicoceles
2. To review the current literature, evidence and guidelines on management.
3. To assess different forms of treatment

Varicoceles remain an area of controversy in male infertility. In this lecture we will explore the available evidence and literature on varicoceles, including an assessment of the different treatment modalities and updates to guidelines, to provide a more evidence based rationale to treatment.

Biography: see page 7