SSMR News

Spring Society for the Study of Male Reproduction 2014

President's Message

Peter N. Kolettis, MD

Dear Members of the SSMR,

It has been my pleasure to serve as President of SSMR this past year. This is truly an exciting time for all of us in this field. I would like to highlight our progress with some of our important initiatives for this year.

- SSMR members continue to work with the CDC on male reproduction and men's health as an important public health issue.
- Continued progress is being made with the Andrology Research Consortium (ARC). Please contact arc@mtsinai.on.ca if you are interested in participating.
- The SSMR continues to provide Men's Health Traveling Fellowship grants to residents and fellows with an interest in male reproduction.

Turning to this year's AUA meeting, I would like to give our membership an overview of some of the highlights that are relevant to male reproduction. The SSMR meeting on Tuesday, May 20, 2014, from 12:00 p.m. – 5:30 p.m., is directed by Joseph P. Alukal, MD. The course, entitled "Update on Microsurgery for Male Infertility," features an outstanding faculty, including Drs. Joseph P. Alukal, Keith Jarvi, Larry Lipshultz, Joel Marmar, Ethan Grober, Daniel Williams, Mohit Khera, Edward Kim, Marc Goldstein, Paul Turek and Edmund Sabanegh. The course will cover important topics including treatment of infertility secondary to vasectomy, varicocele, nonobstructive azoospermia, infertility and the Internet and microsurgical training during urologic residency.

On Friday, May 16, 2014, the International Consultation on Men's Health and Infertility (ICUD-MHI) will hold its meeting from 7:00 a.m. – 6:00 p.m.

On Sunday, May 18, 2014, from 8:32 a.m. – 8:52 a.m., SSMR members Drs. Joseph P. Alukal, Paul Turek and I will participate in a forum entitled "Critical Discussion: Advanced Paternal Age – What are the Real Risks?" From 9:07 a.m. – 9:22 a.m., Dr. Ajay Nangia will give the State of the Art Lecture entitled "The Adverse Effects of Common Medications on Male Infertility."

The following postgraduate courses will be devoted to Male Infertility

Postgraduate Course 43
Sunday, May 18, 2014
3:30 p.m. – 6:30 p.m.
Infertility Update 2014: A Comprehensive Approach to the Clinical Diagnosis and Treatment of the Infertile Male
Director: Larry I. Lipshultz, MD
Faculty: Robert E. Brannigan, MD,
Craig S. Niederberger, MD and
Edmund S. Sabanegh, Jr., MD
Orange County Convention Center: W 206

Postgraduate Course 58
Monday, May 19, 2014
8:30 a.m. – 11:30 a.m.
How General Urologists Can Evaluate and Treat Male Infertility
Director: Marc Goldstein, MD
Faculty: Peter Chan, MD and Mark Sigman, MD
Orange County Convention Center: W 207

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In This Issue...

Postgraduate Course 73
Monday, May 19, 2014
3:30 p.m. – 6:30 p.m.
Vasectomy: Optimum Surgical Technique, Preoperative Counseling and Postoperative Management
Director: Ira D. Sharlip, MD
Faculty: Stanton C. Honig, MD, Joel L. Marmar, MD and Jay I. Sandlow, MD
Orange County Convention Center: W 208

Postgraduate Course 82
Tuesday, May 20, 2014
8:30 a.m. – 11:30 a.m.
Vasectomy Reversal and Male Infertility, Treatment in the ICSI Era
Director: Peter N. Schlegel, MD
Faculty: Arnold M. Belker, MD, Sheldon H.F. Marks, MD and Robert D. Oates, MD
Orange County Convention Center: W 203

The following podium sessions will cover Male Infertility topics as well:

Podium Session 24
Monday, May 19, 2014
3:30 p.m. – 5:30 p.m.
Orange County Convention Center: W 303
Infertility: Therapy
Moderators: Robert Oates, MD and Peter N. Schlegel, MD

Moderated Poster Session 66
Tuesday, May 20, 2014
8:00 a.m. – 10:00 a.m.
Orange County Convention Center: W 304 A
Infertility: Basic Research, Physiology & Pathophysiology
Moderators: Dolores J. Lamb, PhD and Craig S. Niederberger, MD

Moderated Poster Session 68
Tuesday, May 20, 2014
10:30 a.m. – 12:30 p.m.
Orange County Convention Center: W 304A
Infertility: Evaluation
Moderator: Keith A. Jarvi, MD

Please remember that our organization is a vital resource that serves our patients with reproductive problems and our members who are working to improve care for these patients. I encourage all of you to become involved in our efforts to improve care for men with reproductive problems. I hope you will join us at our Annual Meeting as well as the annual banquet. I look forward to seeing you in Orlando.

Peter N. Kolettis, MD
President, SSMR

Review of ASRM 2013

SUNDAY, OCTOBER 13, 2013

Post Graduate Course 22
The Significance, Implications and Heritability of Male Infertility as a Disease
Sunday, October 13, 2013
Faculty: Paul J. Turek, MD (Chair); Douglas T. Carrell, PhD, HCLD; Andrea Salonia, MD; Thomas J. Walsh, MD, MS
(Summarized by Eran Altman, MD)

There is a trend of delaying fatherhood among men in the western world. Increased age is associated with an increase in sperm concentration and diploidy, as well as a decline in semen volume and sperm vitality. In contrast, motility, morphology and DNA fragmentation are not affected by male age. Aging is associated also with morbidities such as hypertention and benign prostate hyperplasia, which have a direct or secondary effect on male fertility due to medication.

Furthermore, there are several medical conditions of growing epidemiologic interest that also have been linked to male infertility. Approximately 35% of the adult population in the USA suffers from metabolic syndrome, which is associated with hypogonadism, poor sperm morphology, erectile dysfunction, somatization and depression, which have been linked to male infertility. Diabetes Mellitus (DM) prevalence is predicted by the WHO to reach 366 million by 2030, representing a 39% increase for the year 2000. Both types of DM may significantly impair male reproduction function at multiple levels. DM has an impact on the endocrine control of spermatogenesis, spermatogenesis itself, and on erectile dysfunction and ejaculation. Whether DM affects semen quality as well is still in debate. Adverse effect on male fertility may also be caused by chronic diseases such as typhoid dysfunction, liver or kidney disease or as a result of autoimmune conditions.

Similarly, many types of the drugs used to treat the medical conditions discussed above are involved in impaired male fertility. This impairment is usually caused by either a gonadotoxic effect on the testes through an alteration of the hypothalamic-pituitary-gonadal axis or by a sexual dysfunction such as impaired ejaculation, erectile function or sexual desire.

In conclusion, either age alone or age compounded with chronic diseases and their required medical treatment, are associated with male infertility. Therefore, that possibility should be addressed by the caregiver when treating those patients.

MONDAY, OCTOBER 14, 2013

Minisymposium
Society for Male Reproduction and Urology Minisymposium – How to Get a Walrus Pregnant: A Proven Recipe
Monday, October 14, 2013
Holley Muracco, BS
(Summarized by Mary Samplaski, MD)

The Pacific Walrus is endemic to the Arctic, but zoologic facilities housing these animals have been having difficulty breeding them. Walruses have unique physiology and mating practices, as compared with humans. Females ovulate once per year, and males rut only seasonally. Walruses in captivity were trained to tolerate blood draws and semen collections as well as female vaginoscopies. Scientists found that during their rut, walruses have excellent semen parameters, with sperm concentration >300 million/mL. However, sperm are only present seasonally, during the rut. Further investigations led to the understanding that due to climate changes, the reproductive cycles for male and female walruses were "off cycle." Females continued to ovulate during the spring but aberrant male sperm production was now during the winter. This was due to altered daylight exposure time, resulting in hypothalamic pituitary axis activation and sperm production at the wrong time of the year. Consequently, since intercourse was not happening at the time of ovulation, no pregnancies were occurring. In addition, female walruses were found to have a didelphic uterus at baseline (which converts to a functionally single uterus and vagina at the time of ovulation), resulting in a mechanical barrier to achieving a pregnancy when not seasonally appropriate. In an attempt to breed these beautiful animals, a male walrus was treated with hCG during the spring months (concurrent with female ovulation), which induced a rise in testosterone and sperm production. He was then mated with an ovulating female, and a pregnancy ensued. While this first pregnancy resulted in a stillbirth, there are currently two more pregnant walruses using these methods. A better understanding of the abnormality in the walrus mating cycle, coupled with our knowledge of human reproductive biology, allowed the abnormality to be reversed. Hopefully, these new protocols will allow for more Pacific Walruses to be bred in captivity.

TUESDAY, OCTOBER 15, 2013

Society for Male Reproduction and Urology Minisymposium – Can Sperm Contribute to Poor Embryo Quality? The Role of Sperm RNA
Tuesday, October 15, 2013
5:30 p.m. – 6:00 p.m.
Presented by Steven Krawetz, PhD
(Summarized by Robert Stobezki, BA)

Until now, most studies pertaining to embryo quality and development are limited to the information derived from RNA of the oocyte. Now, sperm RNA is also being analyzed for its role in reproduction. It has always been believed that the sperm is only needed for paternal DNA delivery and that any RNA present must have been remnants from spermatogenesis. This has been shown not to be the case, and that sperm actually contain coding and non-coding RNA, which eventually decides the fate of the developing embryo. Sperm RNA has

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been shown to play a role in activation and maturation of the embryo. Mature sperm are highly condensed structures with the genome being compacted about thirteen fold compared to somatic cells. This is primarily due to protamines, but in humans about 15% are histone bound. Upon fertilization, the entire sperm is taken up by the oocyte and the DNA is reduced by glutathione and other reducing agents. The DNA is then repacked by replacing the protamine components with histones themselves; however, it still has an RNA backbone.

The techniques used to identify sperm RNA have relied on RT-PCR and microarray analysis until now, but with the advent of RNA sequencing (RNA-seq), even more information can now be obtained. Many types of RNAs have been identified and also those which have retained RNA transcript integrity can be determined using this technology.

Initial observations of sperm RNA focused on mRNAs, as they are the main transcript in the cell. One study looked at spermatozoal transcripts from fertile males and those of teratozoospermic individuals. They were able to distinguish the teratozoospermic individuals from normal individuals by microarray analysis. The results showed that a reduction in proteasomal mRNAs was the major reason for the morphological change in sperm from teratozoospermic individuals (1).

In a different study, rRNAs were observed, but only partial transcripts were found in mature spermatozoa. These partial transcripts of rRNA, such as the 18S and 28S regions were shown to play a role in ensuring that the sperm is translationally silent, so it doesn't interfere with anything during the journey to fertilization (2).

A recent study that performed RNA-seq analysis on sperm samples determined the most intact sperm RNA transcripts and one in particular is INTS1. INTS1 is needed for the spliceosome at early blastocyst stage and levels of this transcript increase in the embryo as compared to the oocyte, thus showing the contribution from the sperm. In addition, many other small non coding RNAs, such as piRNA and miRNA, were shown to be present in sperm RNA. piRNAs were first studied as a way to observe all the repetitive elements that are present in the oocyte upon fertilization. There are over 2300 different piRNAs and they have varying affinities to the various classes of repetitive elements. There are sufficient piRNA delivered by the sperm to balance those contained by the oocyte (3).

There are two miRNAs, which have been shown to be involved in oocyte activation during the first cell division. In particular, pri-miRNA181C, which is the most abundant of all of them, is maintained in a precursor form until it is activated into its mature form, which alters CARM1 expression. This causes an increase in OCT4 and SOX2 expression to form the pluripotent cell mass (3). The other miRNA is miRNA34C, which is involved during the first cell division. Liu et. al. shows that miRNA34C is based on Bcl2 expression, which ultimately determines cell fate (4). Both miRNAs are sperm specific, as the oocyte does not contain any detectable amount, thus showing the importance of sperm RNA in embryo activation and maturation.

Understanding the various roles of sperm RNA in embryo development will allow for diagnostic tools to be developed to determine male factor infertility. In addition, this knowledge of sperm RNA involvement in early embryogenesis may be useful for successful parthenogenesis.

References:

1. Platts, A. E., et al. (2007). "Success and failure in human spermatogenesis as revealed by teratozoospermic RNAs." Hum Mol Genet 16(7): 763-773.
2. Johnson, G. D., et al. (2011). "Cleavage of rRNA ensures translational cessation in sperm at fertilization." Mol Hum Reprod 17(12): 721-726.
3. Sendler, E., et al. (2013). "Stability, delivery and functions of human sperm RNAs at fertilization." Nucleic Acids Res 41(7): 4104-4117.
4. Liu, W. M., et al. (2012). "Sperm-borne microRNA-34c is required for the first cleavage division in mouse." PNAS 109(2): 490-494.

WEDNESDAY, OCTOBER 16, 2013

Plenary Lecture 7

American Urological Association Bruce Stewart Memorial Lecture: Moving the Needle on Male Reproduction Health
Wednesday, October 16, 2013
Presented by David de Krester, MD
(Summarized by Samuel Ohlander, MD)

The AUA seeks out an individual who exemplifies excellence as a writer, teacher and surgeon to honor for the Bruce Stewart Memorial Lecture. In 2013, the honor was bestowed upon a very deserving Dr. David de Kretser. He presented his journey.

Dr. de Kretser has invested his life's work in the advancement of awareness for male reproductive health. Over 20 years ago, he established the Monash Institute of Reproduction and Development. Through his work at that institution, and by listening to the people of Australia, he recognized a lack of emphasis on men's health. He sought and obtained funding, to the tune of $5 million over 4 years, to create the Australian Center for Excellence in Male Reproductive Health, now known as Andrology Australia. The organization undertook the massive endeavor of educating both the community as well as health care professionals, and has found great success.

Through household sampling and phone interviews of men over the age of 40, Dr. de Kretser investigated the community epidemiology, disease perception and active management of many male health issues in the Australian community. Andrology Australia made particular efforts to assess and address the indigenous groups within the country that often shied away from discussion on such intimate health issues. Their work resulted in the collection of nearly 6000 participants providing information on issues of erectile dysfunction, prostate disease and infertility. They sought to "normalize" the issues of male health to promote knowledge and encourage individuals to seek evaluation. They have created numerous modalities of education for the community as well as professionals, such as androgen abuse monitoring, video resources, forums and nurse education in both print and electronic format. They focus on prevention and early intervention and have created an online site with over 6000 visits per month, provided over 600 organizations with men's health educational material and played a significant role in federal and state government policies. There is not enough space available to appropriately

highlight Dr. de Kretser's contribution to male reproductive health. His lecture provided us with a brief glimpse into his success. For further information, and to view the work of his organization, please visit www.andrologyaustralia.org.

Interactive Session

Society of Reproductive Surgeons –
Male Fertility Preservation
Wednesday, October 16, 2013
1:00 p.m. – 2:00 p.m.
Presented by Peter Chan, MD (Chair); Kirk C. Lo, MD; Robert E. Brannigan, MD
(Summarized by Gina Lockwood, MD)

An important but often forgotten aspect of male infertility is that of fertility preservation. The concept of "fertility after cancer" has been shown to be a significant and personal issue facing male cancers survivors. Cytotoxic chemotherapy is known to impact future fertility with effects on semen parameters, DNA and increased aneuploidy. In surveys of young cancer survivors, it has been shown that they think fertility should be discussed before and after treatment, regardless of age at presentation. Despite this, the recent SPARE survey demonstrated that fewer than 50% of Pediatric Oncologists surveyed were even familiar with the American Society of Clinical Oncology fertility preservation recommendations. This session stressed the importance of creating an institutional onco-fertility team including Urologists, Reproductive Endocrinologists, Oncologists, Laboratory Staff, Pediatric Oncologists, Nurses, Billing Professionals, Psychologists and other support staff. This multidisciplinary team can ensure counseling in an effective and gentle manner regarding reproductive management that can help to optimize long-term satisfaction in these young men.

The only available option for male fertility preservation at present is sperm cryopreservation, and this should be offered to all men and adolescent boys undergoing cytotoxic therapies that may compromise their reproductive health. Despite good cryopreservation techniques, this is not a perfect technology as this sperm is limited in quantity for later use and still has high risk of DNA fragmentation even despite normal semen parameters. Men should be counseled that fresh ejaculated sperm can still be used for ICSI after cancer, but there is a risk of aneuploidy and compromised sperm chromatin after chemotherapy although the impact of this on offspring is unknown. Further studies into sperm selection methodologies may provide insight into the best sperm to be used for assisted reproductive technology after treatment for cancer.

Because of these imperfect options for fertility preservation, recent research has focused on *in vivo* maturation of germ cells, *in vitro* differentiation of germ cells in an artificial testicular environment and induction of pluripotent stem cells. Although these strategies are experimental and still at the level of animal studies, the concepts above could potentially translate one day into a feasible way to allow for fertility preservation/restoration, particularly for pre-adolescent boys diagnosed with cancer.

Society for Male Reproduction and Urology Minisymposium – Where Are We With Germ Line (Sperm and Eggs) Stem Cells?

Wednesday, October 16, 2013
5:30 p.m. – 6:00 p.m.
Presented by Amander Clark, PhD
(Summarized by Gihan Bareh, MD, PhD)

The objectives of this session were:

1. Scientific need to create stem cell model to study germ line formation
2. Using stem cell model to understand mechanisms of epigenetic inheritance
3. Functional analysis

The germ cell lineage in mammals originates from pluripotent epiblasts as primordial germ cells (PGCS) and undergoes sexually dimorphic development, generating spermatozoa in males and oocytes in females. Inheriting parental DNA relies upon a healthy germ line and major epigenetic reprogramming events that occur in embryo and fetus. Germ cell reprogramming is unique in mammals. Germ cells are specified from the epiblast in mammals. Strategy used for isolating human P germ cells include antibody CKIT (8-20 weeks of development). This helps to study methylation in germ cell lines.

- Demethylation of ICCS occurs after global loss starts at nine weeks of development.
- 5hmc is enriched at the Peg 3 ICC in Promordial germ cell (PGCS)

Hypothesis of Research: 5hmc Prevents DNA methylation inheritance at ICC with cell division

Methodology: Using stem cell model to understand global demethylation
Embryonic stem cells → Differentiate → Induced Primordial Germ Cell (iPGCs)
Studies showed:

a) iPGCs made from stem cells undergo global loss of cytosine methylation.
b) Demethylation is associated with an increase in GC methylation asymmetry.
c) Differentiation of germ cells is an asynchronous process.
d) Tet 1 & Tet 2 have no role in global DNA methylation

Summary: Functional egg and sperm can be generated.

- iPS cells are less efficient than embryonic stem cells (ESCs) at creating germ cells & spermatogenesis quality is still unknown.
- Future studies will require improvement in quality of eggs and sperm.
- Human studies must be translated to primate so that functional tests can be performed.

SSMR Elections

Once again, the Society for the Study of Male Reproduction will be holding elections online. The ballot will be placed in the Members Only section of the website (www.ssmr.org). All voting members will be able to vote thru April 30, 2014.

The positions open for election this year are treasurer and member-at-large. We encourage all voting members to participate in this process. To log in to the Members Only section you will need your username (which is your last name), as well as your password (which is your member number). You can request your password at the sign-in if you do not have that information available. We hope that this will make it easier to stay involved in our society and make your voice heard.

2014 Society for the Study of Male Reproduction (SSMR)

"Update on Microsurgery for Male Infertility"

Joseph P. Alukal, MD, Program Chair

"Update on Microsurgical Technique: Tips and Tricks from the Experts"

Microsurgical technique is centrally important to the clinical practice of andrology; we are very pleased this year to focus the 2014 SSMR Special Symposium entirely on expert training in this difficult skill set. Both the SSMR and the general AUA membership will stand to benefit from this year's symposium. We are scheduled to have many of the pre-eminent leaders in their respective fields on the program, and I feel we will be able to offer something very unique in terms of expert perspective on microsurgical techniques, clinical pearls for recognizing who might benefit from surgical intervention and strategies for microsurgical teaching and learning that can benefit residents and fellows. I am fully confident there will be something important for everyone in attendance.

The three predominant clinical areas we are focused on are vasectomy reversal, surgical sperm retrieval and varicocele, with a specific focus on vasectomy reversal. Dr. Keith Jarvi will speak to us about the data on technical advances in surgical adjuncts such as fibrin glue that can be potentially used during vasectomy reversal. Dr. Mohit Khera will discuss an increasingly common clinical conundrum – the management of the patient on testosterone replacement who desires vasectomy reversal. Drs. Larry Lipshultz, Joel Marmar and Ethan Grober will help us to better understand which patients require vasoepididymostomy and how you can best perform this procedure. Finally, Dr. Dan Williams will address pitfalls in the Internet marketing of vasectomy reversal services.

With regard to varicocele repair, Drs. Edward Kim and Marc Goldstein will help the audience understand the indications for performing this procedure; Dr. Kim will review the data looking at the role for varicocele repair in the management of severely oligospermic and azoospermic patients. Dr. Goldstein will overview some relatively new data looking at the management of hypogonadism through varicocelectomy; again, an increasingly common clinical scenario that andrologists and general urologists are confronted with.

Finally, Dr. Paul Turek will walk us through pearls for successful sperm retrieval in the management of non-obstructive azoospermia, and Dr. Peter Schlegel will outline the expectations for teachers and trainees at the resident and fellow level in terms of microsurgical training.

All in all, I am very excited to offer this expert panel and their tremendous experience and insight on these questions. The microsurgical management of male infertility can be difficult even for the fellowship trained andrologist; hopefully our symposium will offer useful teaching to both andrologists and general urologists alike so that they might deliver the best possible care to their infertile patients. I look forward to being a part of this symposium and to seeing you all in Orlando in May.

All the best,
Joseph P. Alukal, MD

SSMR 2014 Annual Meeting Program Schedule

"Update on Microsurgery for Male Infertility"

Tuesday, May 20, 2014 | 12:00 p.m. – 5:30 p.m.
Hyatt Regency | Plaza International Ballroom G
Orlando, Florida
Program Chair: Joseph P. Alukal, MD

12:00 p.m. – 1:00 p.m.	**Special Symposium – Genetics of Male Infertility** **Genetic Evaluation of Azoospermia and Severe Oligospermia** Cigdem Tanrikut, MD **The Future of Genetic Testing and Infertility** Dolores J. Lamb, PhD
1:00 p.m. – 1:10 p.m.	**Introduction** Joseph P. Alukal, MD
	Vasectomy Reversal
1:10 p.m. – 1:30 p.m.	**Use of Adjuncts with Vasovasostomy: Can We Really Make This Procedure Any Better?** Keith A. Jarvi, MD
1:30 p.m. – 1:50 p.m.	**Vasovasostomy vs. Vasoepididymostomy: Implications of Microscopic and Macroscopic Fluid Quality** Larry I. Lipshultz, MD
1:50 p.m. – 2:10 p.m.	**Vasoepididymostomy: What Else Can Be Done to Improve Results?** Joel L. Marmar, MD
2:10 p.m. – 2:30 p.m.	**If You Do Not Perform Vasoepididymostomy, Should You Perform Vasectomy Reversal?** Ethan D. Grober, MD, MEd, FRCSC
2:30 p.m. – 2:50 p.m.	**The Internet and Vasectomy Reversal** Daniel H. Williams, IV, MD
2:50 p.m. – 3:10 p.m.	**Approach to the Patient on Testosterone Who Desires Vasectomy Reversal** Mohit Khera, MD, MBA, MPH
3:10 p.m. – 3:25 p.m.	**Break**
	Varicocele
3:25 p.m. – 3:40 p.m.	**Varicocelectomy for Azoospermia or Severe Oligospermia** Edward D. Kim, MD
3:40 p.m. – 4:05 p.m.	**Varicocelectomy for Hypogonadism** Marc Goldstein, MD, FACS
	Sperm Retrieval
4:05 p.m. – 4:25 p.m.	**Optimizing Sperm Retrieval** Paul J. Turek, MD, FACS
	Microsurgery and Urology Residency Training
4:25 p.m. – 4:45 p.m.	**What Microsurgical Ability Should the General Urologist Expect at the Completion of Residency Training?** Peter N. Schlegel, MD
4:45 p.m. – 5:00 p.m.	**Questions and Answers**
5:00 p.m. – 5:30 p.m.	**SSMR Business Meeting**

2014 SSMR Meeting

"Update on Microsurgery for Male Infertility"

NEEDS & OBJECTIVES AND ACCREDITATION

Educational Needs

Many urologists lack information and data regarding the current research on genetic testing technology and its impact on future treatment. Consequently, many practicing urologists will continue to provide current treatment when genetic testing and technology may provide patients much better, individualized treatment and outcomes. The program will promote a better understanding of genetic testing technology and updated information on vasectomy reversal complications and treatment. State of the art management options will be offered by experts to achieve optimal results.

Educational Objectives

By the conclusion of the SSMR 2014 Annual Meeting, participants should be expected to:

1. Explain the workup of the azoospermic or oligospermic male patient including semen analysis and genetic testing.
2. Describe current techniques for vasectomy reversal including vasovasostomy and vasoepididymostomy.
3. Identify options for the management of the hypogonadal patient seeking fertility after vasectomy, including those who are already on testosterone replacement at the time of diagnosis.
4. Identify treatment options for the patient with varicocele.
5. Describe the workup and management of varicocele causing azoospermia or severe oligospermia.
6. Describe the workup and management of varicocele causing pain or hypogonadism.
7. Explain options for the infertile couple in terms of assisted reproductive techniques; this includes in vitro fertilization and intracytoplasmic sperm injection, as well as intrauterine insemination.
8. Describe treatment options for the patient with non-obstructive azoospermia including microdissection testicular sperm extraction and testicular mapping.
9. Describe approaches to microsurgical training as part of urology residency or on a postgraduate basis.

AUA ACCREDITATION INFORMATION

Accreditation: The American Urological Association (AUA) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation: The American Urological Association designates this live activity for a maximum of **3.5** ***AMA*** *PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Evidence Based Content: It is the policy of the AUA to ensure that the content contained in this CME activity is valid, fair, balanced, scientifically rigorous, and free of commercial bias.

AUA Disclosure Policy: All persons in a position to control the content of an educational activity (i.e., activity planners, presenters, authors) participating in an educational activity provided by the AUA are required to disclose to the provider any relevant financial relationships with any commercial interest. The AUA must determine if the individual's relationships may influence the educational content and resolve any conflicts of interest prior to the commencement of the educational activity. The intent of this disclosure is not to prevent individuals with relevant financial relationships from participating, but rather to provide learners information with which they can make their own judgments.

Resolution of Identified Conflict of Interest: All disclosures will be reviewed by the program/course directors or editors for identification of conflicts of interest. Peer reviewers, working with the program directors and/or editors, will document the mechanism(s) for management and resolution of the conflict of interest and final approval of the activity will be documented prior to implementation. Any of the mechanisms below can/will be used to resolve conflict of interest:

- Peer review for valid, evidence-based content of all materials associated with an educational activity by the course/program director, editor and/or Education Content Review Committee or its subgroup
- Limit content to evidence with no recommendations
- Introduction of a debate format with an unbiased moderator (point-counterpoint)
- Inclusion of moderated panel discussion
- Publication of a parallel or rebuttal article for an article that is felt to be biased
- Limit equipment representatives to providing logistics and operation support only in procedural demonstrations
- Divestiture of the relationship by faculty

Off-label or Unapproved Use of Drugs or Devices: It is the policy of the AUA to require the disclosure of all references to off-label or unapproved uses of drugs or devices prior to the presentation of educational content. The audience is advised that this continuing medical education activity may contain reference(s) to off-label or unapproved uses of drugs or devices. Please consult the prescribing information for full disclosure of approved uses.

Disclaimer: The opinions and recommendations expressed by faculty, authors and other experts whose input is included in this program are their own and do not necessarily represent the viewpoint of the AUA.

Audio, Video and Photographic Equipment: The use of audio, video and other photographic recording equipment by attendees is prohibited inside AUA meeting rooms.

Reproduction Permission: Reproduction of written materials developed for this AUA course is prohibited without the written permission from individual authors and the American Urological Association.

Special Assistance/Dietary Needs: The American Urological Association complies with the Americans with Disabilities Act §12112(a). If any participant is in need of special assistance or has any dietary restrictions, please see the registration desk.

You are Invited to Attend the 2014 SSMR Annual Banquet!

Tuesday, May 20, 2014 | 6:30 p.m. – 10:30 p.m. | Taverna Opa
9101 International Drive, #2240 | Orlando, FL 32819

Register for the banquet quickly and easily online at www.ssmr.org

Taverna Opa Orlando welcomes you to loosen your ties and have an unforgettable lunch and dinner experience with authentic Greek cuisine and entertainment. Bringing a touch of the Mediterranean to Orlando, Taverna Opa imports cheeses, olives and oil directly from Greece. They are known for their abundant selection of fresh seafood delivered daily as well as their lamb chops, the restaurant's best seller. Signature selections such as Tzatziki, Hummus, Greek Yogurt and Dolmades are made daily on the premises and from scratch. They also offer an extensive Greek wine selection with more than 20 varieties and a full liquor bar.

Dinner and Cocktails **6:30 p.m. – 10:30 p.m.**

Casual attire is appropriate.

If you have any dietary needs, please contact the SSMR office at (847) 517-7225 prior to May 7, 2014.

Please select the category that best describes your status:

❑ Fellow	❑ Other	❑ Researcher	❑ Urologist
❑ Full Time Administrator	❑ Other Medical Professional	❑ Resident	❑ Urology Fellow
❑ Non Physician Provider	❑ Physician	❑ Student/Trainee	❑ Urology Resident

Industry
Thank you for your interest in registering for this meeting. Please contact JP Baunach at (847) 264-5942 or by email jp@wjweiser.com in the SSMR executive office to receive registration materials along with any discount that may be provided due to company sponsorship of this meeting.

Name:Spouse/Guest:_____

Address:_____

City:_____ State:_____Zip:_____

Phone:_____Fax:_____Email:_____

# of people attending _____ x $80.00 per person = $ _____ (on and before May 7, 2014)

# of people attending _____ x $90.00 per person = $ _____ (after May 7, 2014)

Payment Information

The SSMR requires payment to register for this event by check or credit card.

❑ Check (payable to the SSMR) ❑ Visa ❑ MasterCard ❑ American Express

Credit Card #: _____

Expiration Date: _____CVV#:_____

Name on Credit Card:_____

Billing Address: _____

The issuer of the card identified on this item is authorized to pay the amount shown as TOTAL upon proper presentation. I promise to pay such TOTAL (together with any other charges due thereon) subject to and in accordance with the agreement governing the use of such card.

Signature: _____

Please return this form to the SSMR office no later than May 7, 2014.

SSMR
Two Woodfield Lake
1100 East Woodfield Road, Suite 350 | Schaumburg, IL 60173-5116

ADDITIONAL REGISTRATION INFORMATION

Registration Cancellation & Refund Policy
Registration refund requests must be submitted in writing to the SSMR Executive Office by **April 20, 2014.** All refund requests will be subject to a $25 processing fee. No refunds will be made after **April 20, 2014.**

Questions
Please feel free to contact the SSMR Executive Office by:
Phone: (847) 517-7225 | Fax: (847) 517-7229
Email: info@ssmr.org | Website: www.ssmr.org

Mark Your Calendars

Online Voting for SSMR Leadership
Now – April 30, you will be able to vote for the 2014 – 2015 open SSMR leadership positions on line at www.ssmr.org

Exercise your RIGHT TO VOTE!

SSMR Annual Meeting at the AUA Annual Meeting
Tuesday, May 20, 2014
Hyatt Regency
Plaza International Ballroom G
Orlando, Florida

The Society for the Study of Male Reproduction (SSMR) encourages organizations and individuals to link to www.ssmr.org.

SSMR

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