



Center For Advanced Fetal Care Newsletter

Volume 5 Issue 1
Winter of 2014
Tripoli - Lebanon

INSIDE THIS ISSUE

Utopia...	1
Autism and Induction	1
On Autism	1
Fetal Cardio Symposium	2
Advances in Fetal Medicine	2
ISUOG's VISUOG	3
AIUM Convention	3
Abstracts for FMF	3
Abstracts for ISUOG	3
Upcoming Cairo Course	3
CFAFC News	3
Hot-off-the-Press	3
SANA NGO in Review	4
Featured Website	4
Upcoming Courses	4

Utopia...

...We spend entire lives in search of **utopia**, and dedicate entire careers in search of panacea... And with the unbelievable technological advances that are available to us, today we are looking earlier and delving deeper into the fabric of our lives, and the intricate weave of our genes and environment, as early as our in-utero days, unraveling the mysteries of how we are programmed for the various diseases and ailments that affect our lives. And it is precisely that clearer comprehension of this complicated weave which constitutes the main prerequisite for early diagnosis and subsequent preventative measures in order for us to ensure ultimate early therapy, bringing us closer and closer to panacea. We thus dedicate this issue, which marks CFAFC's fourth anniversary, to "utopia", shedding light on all that is illuminating the path of this long journey in search of **joy** and panacea. At the selfsame instant, and as we sculpt our path, we must maintain vigilance safeguarding against the catastrophic consequences. As such, we present the latest research exploring the possible effects of induction of labor on autism and a recent editorial addressing this potential perilous association. We present an overview of UCLA's annual symposium on fetal cardiology recently held in Los Angeles addressing this most critical area in fetal medicine and one for which early prenatal diagnosis has been shown to be of great impact on the outcome and well-being of the affected fetuses. In addition, we review the Fetal Medicine Foundation's Advances in Fetal Medicine course recently held in London, which as is customary, skips steps and steps, and jumps leaps and leaps towards panacea. And in addition to our usual quarterly features, we present this issue's technological recommendation: ISUOG's "VISUOG". And as CFAFC commences its 5th year, we hope that we shall continue to enjoy the privilege of your support and interest, as we travel forward in time into a most exciting future, one in which we shall hopefully reach utopia, taking us further away from "The Sleep of **Sorrow**" and bringing us closer towards "**The Dream of Joy**"....



The Sleep of Sorrow & The Dream of Joy

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Autism Association with Induced or Augmented Childbirth

Autism spectrum disorders affect roughly 1/88 children in the USA and though there is evidence that they are highly heritable, several studies, including studies on twins (both dizygotic and monozygotic), have concluded that prenatal as well as postnatal environmental factors influence a child's susceptibility to autism. As such, a recent study by Gregory et al published in **JAMA Pediatrics** addresses a concerning potential association between induced or augmented labor and autism. In their study, Gregory et al performed an epidemiological analysis on 625042 live births in North Carolina born between 1990 and 1998 whose school records were available through the North Carolina Detailed Birth Record and Education Research Databases. Of those children, 5500 had documented evidence of autism in the child's educational records. After controlling for possible confounders such as socioeconomic class, maternal health, pregnancy-associated complications, and the child's year of birth, there remained an increased odds ratio of autism in children whose mothers underwent induction and augmentation, induction alone, or augmentation alone, in comparison to children whose mothers received neither induction nor augmentation of labor. In addition, male fetuses seemed to be at a higher risk. The authors concluded that their study suggests a potential association between oxytocin and an increased odds ratio for the development of childhood autism stressing the importance of further detailed investigations.

Association of Autism With Induced or Augmented Childbirth in North Carolina Birth Record (1990-1998) and Education Research (1997-2007) Databases
Gregory G, Dingler PR, F. Rebecca Antoshick, MD, Clark E, Duggan BP, Chou A, Stroup, MD, Ware
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Does Augmentation/Induction of Labor Increase Autism?

As a consequence to the media attention generated by Gregory et al's study, there has been an editorial in **AJOG** by **Vintzileos and Ananth** and a recently released **SMFM Statement** addressing the study's findings. Vintzileos and Ananth attribute the rising incidence of autism to changes in nomenclature and classification, better awareness and changes in practice patterns leading to increased diagnosis of childhood autism. The authors address the effect of oxytocin on cognitive function and social behavior and hypothesize that intrapartum administration of oxytocin may down-regulate fetal oxytocin brain receptors. The SMFM Statement concludes that the methodology utilized in Gregory et al's study has several shortcomings precluding it from proving a direct link between induction/augmentation of labor and autism. And as such, the SMFM states "this single study should not be viewed as an incentive or provide justification for any change in practice regarding labor induction and management.". It becomes quite clear that vigilance is critical, and more conclusive studies are necessary.

SMFM Statement
Society for Maternal-Fetal Medicine, with the assistance of Robert W. Silver, MD
and George Saade, MD

Highlights from the 3rd Annual Fetal Cardiology Symposium Held October 19, 2013 in Los Angeles, California. By Mark Sklansky, MD

The third annual fetal echocardiography symposium at **UCLA**, located in the Tamkin Auditorium on the beautiful UCLA campus in the heart of Westwood, was another tremendous success this year with an expanded, sold-out audience of 225. The one-day symposium has become an invaluable, highly popular annual update for health professionals interested in improving their ability to evaluate the fetal heart. The symposium has retained its focus as an intensive, one-day overview, focused on tips and pearls of scanning prepared by an internationally acclaimed faculty of maternal-fetal medicine specialists, pediatric cardiologists, and obstetric sonographers with decades of experience. As in previous years, attendees were provided both an intensive review and update on the basics of fetal cardiac imaging, including tips and pearls of scanning, as well as insights into detailed fetal echocardiographic interpretation and prognosis.

The symposium began by sequentially addressed the four-chamber view, outflow tracts, and the three-vessel tracheal view. Each session reviewed technical aspects of scanning (how to obtain optimal views), important anatomical/functional aspects (interpretation, how to confirm normalcy), and pertinent diagnostic/prognostic components of the most common forms of congenital heart disease. Additional talks focused on secondary cardiac findings, including echogenic foci, tricuspid regurgitation, premature atrial contractions, ventricular hypertrophy, and right heart disproportion, as well as aneuploidy and twin-twin transfusion syndrome. Highlights of the symposium included clinically useful pitfalls and pearls of cardiac imaging from the perspective of sonographers, maternal-fetal medicine subspecialists, and pediatric cardiologists. The symposium concluded with a lively panel discussion, during which the faculty fielded a variety of final questions from the audience.

Given the recent revisions to North American guidelines for the second trimester anatomy screen, this year's course provided expanded lectures on the outflow tracts, including expanded attention to the three-vessel trachea view. The intensive series of didactic presentations was complemented with live scanning sessions which served to demonstrate the concepts discussed throughout the day. Finally this year's symposium also provided each attendee The symposium's organizers, Drs. Mark Sklansky and Gregory DeVore, have developed an exciting and clinically-relevant agenda for next year's symposium, already scheduled for October 18, 2014. Prospective attendees are encouraged to save the date and register early at the **UCLA CME Website** as both the 2012 and 2013 symposia sold out over a month in advance. Dr. Sklansky can be reached directly at mksklansky@mednet.ucla.edu.

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Drs. Diab, Sklansky & Harake (L to R)



Drs. Montgomery & Daftari (L to R)



Attendees Gathering in the Lobby

Highlights from the Fetal Medicine Foundation's Annual Course "Advances in Fetal Medicine" Held December 14 - 15, 2013 at the University of London, UK

It was with a "standing room only" section that the **Fetal Medicine Foundation's** annual Advances Course took place in London December 14-15. With over 1000 delegates, many of whom could not secure seats, another futuristic Nicolaides course took place in which the latest trends in fetal medicine were explored.

The course commenced with Professor Nicolaides introducing Professor Kazakov from Russia who first published "Extracellular DNA in the Blood of Pregnant Women" in Russian (Tsitolgia 1995; 37: 232-236). Professor Kazakov, with his translator, presented his pioneering work to an appreciative audience. Subsequently, Professor Nicolaides presented his take on the future of cell-free DNA implementation by suggesting three screening modalities: the first being universal maternal screening across the globe, the second would offer cell-free DNA pending the results of a combined test with a risk $>1/100$ (and arguably the cut-off could be $1/1000$ to enhance the sensitivity), and the third would offer a CVS to those with a high risk and cell-free DNA testing to those with an intermediate risk based on the combined test. Assuming a 5% cell-free DNA failure and for an invasive rate of 1%, the ability of the three models to pick up fetuses with trisomy 21 would be 87%, 95% and 97% respectively. Nicolaides concluded by challenging the global governing bodies that the best performance of this test is not by offering it to the high risk patients, as those are precisely the ones who must undergo invasive testing, rather it would be accomplished by offering it to the intermediate risk group.

Subsequently a comprehensive session on fetal MRI was carried out commencing with the elegant impeccable work of Professors Jani and Cannie from Belgium on the use of fetal MRI for the evaluation of the fetal chest in general, and congenital diaphragmatic hernia in particular. After that, the role of fetal MRI in the genitourinary system was presented by Dr. Nyberg from the UK. Dr. Salomon from France subsequently gave a visually stunning presentation on the fusion of fetal sonographic images with corresponding MRI images. For this ongoing ambitious work, MRIs were carried out on fetuses for various indications prior to the fused sonographic examination. And using specific software on specific ultrasound machines, the MRI volumes were then loaded into the ultrasound machine and a "reference" plane was selected out of the MRI volume. This reference MRI plane was then coupled with the same sonographic plane while carrying out a live sonographic examination using sensor-equipped probes that enabled a fully "fused" examination combining both modalities giving us a glimpse of what is yet to be in the future of fetal imaging.

And the session culminated with the work of Gratacos' team in Spain on fetuses with IUGR. The first presentation was on the differences in the fetal brain of IUGR fetuses presented by Dr. Cortez-Sanz, and the second presentation was on cardiovascular remodeling of fetuses with IUGR presented by Dr. Crispi. And as has become customary over the past year, the conference concluded with an interactive video conference which was given by Berg, Giepel and Kagan from Germany with challenging cases generating much audience participation. And with that came the end of another memorable Nicolaides course and the countdown to the **World Congress** to be held in Nice June 29 to July 3 commenced...



Professors Kazakov, Nicolaides (R to L)



Dr. Laurent Salomon



Dr. Christoph Berg

CFAFC Recommends ISUOG's New Visual Encyclopedia: VISUOG

This past October, **ISUOG** released its newest member-only benefit: **VISUOG**, a visual encyclopedia on various conditions in which sonographic images, video clips and links to relevant articles are presented. It was Professor Gianluigi Pilu from Italy, previous ISUOG President, who first came up with the idea of creating a Wikipedia-like tool of Ob/Gyn ultrasound and developed the concept. The main goal of VISUOG is that whenever a practitioner encounters an unusual case, he may search VISUOG either by carrying out a keyword search or by carrying out a visual search in order to identify a VISUOG image corresponding to the image obtained on a particular patient for further information. VISUOG has a tremendous educational value where practitioners and students may search by organ system to learn about various conditions, their sonographic appearance, in addition to having access to the most pertinent medical literature.

Navigating through VISUOG, one finds yet another example of the user-friendly interfaces that ISUOG has become known for. The visual encyclopedia is divided into an obstetrics and a gynecology section. The obstetrical section has six subsections: normal sonograms, biometry, obstetric Doppler, first trimester complications, placental and amniotic fluid anomalies and finally fetal anomalies. The gynecological section is not yet ready. Completed sections include: the fetal brain, chest and renal systems. Each of these sections has several relevant conditions imaged, labeled and discussed in detail. For instance, the fetal brain anomalies include those of the CSP, ventricles, posterior fossa as well as other anomalies. The fetal chest includes the small chest, heart displacement, echogenic & cystic lungs as well other conditions. And finally, the fetal renal system includes abnormalities of the bladder and kidneys. VISUOG is a fabulous work in progress that shall prove to be invaluable to all who are involved in Ob/Gyn sonography irrespective of their level of expertise. ISUOG members can visit isuog.org to start exploring VISUOG. CFAFC humbly congratulates ISUOG on its superb VISUOG!



THIS AND THAT

Upcoming AIUM



The annual convention of the AIUM will be held in Las Vegas March 29-April 2, 2014. A most comprehensive program with sessions addressing the newest trends in volume sonography Ob/Gyn, fetal echocardiography, ultrasound in medical education, ultrasound in global health, elastography, to name a few is planned. The convention will convene over 5 intense days. For further details and registration information, please visit the AIUM website.

Abstracts FMF



The World Congress of the Fetal Medicine Foundation is coming to France this year and the beautiful French Riviera. The congress will be held in Nice June 29 to July 3, 2014. Abstract submission is now open online and more details are available at the FMF website. And due to the anticipated high attendance during the popular summer months, it is encouraged to book hotel accommodations as early as possible.

Abstracts ISUOG



The annual congress of ISUOG will be held in Barcelona September 14-17, 2014. Abstract submission is now open online for all topics pertaining to ultrasound in Ob/Gyn at a reduced registration fee for abstract submitters. More details are available on the ISUOG website.

Upcoming Cairo Course



The University of Cairo is organizing its 15th annual Ob/Gyn conference March 27-28, 2014 in Cairo. Professor Nicolaidis will be attending and holding an "Advances in Fetal Medicine" course on March 28. Details for abstract submission and registration are available at Kasr Al Ainy.

CFAFC News



This past November, **CFAFC's** Reem S. Abu-Rustum had the honor of participating in the pre-congress ultrasound workshop "Advances in Obstetrical Sonography" organized by GME and GE during the annual international meeting of **LSOG** where she presented "Future Trends in Obstetrical Sonography: Latest Markers and Modalities". She also partook in the recently introduced ultrasound lecture series for the residents at the American University of Beirut's **Dept. of Ob/Gyn** where she covered "Fetal Echocardiography". She contributed to the **Perinatal Quality Foundation's** online case bank as well as to "**Prenatal Perspectives**", the newsletter of the **International Society of Prenatal Diagnosis**. She expresses her deepest appreciation for having been given these invaluable opportunities...

Hot-Off-The-Press: Obstet Gynecol 2013

Review

Accuracy of Ultrasonography at 11–14 Weeks of Gestation for Detection of Fetal Structural Anomalies

A Systematic Review

A. Cristina Rossi, MD, and Federico Prefumo, MD, PhD

The role of nuchal translucency (NT) measurement at 11-14 weeks has gone way beyond early screening for aneuploidy: today a thick NT is one of the highest risk factors for a fetus to be affected by a congenital heart defect and it may underlie other structural defects. And with the advanced sonographic machines we now have, it is only natural to commence a fetal anatomical scan at the time of NT assessment. Couple that with the recent introduction of non-invasive prenatal testing, which is quickly spreading across the globe, and we shall soon find the primary focus of the first trimester scan shifting from screening for aneuploidy to screening for structural defects. As such, Rossi and Prefumo recently carried out a systematic review of 19 publications pertaining to the prenatal detection of structural defects at 11-14 weeks (**Obstet Gynecol 2013; 122: 1160-1167**). In their review, 78002 fetuses at 11-14 weeks were pooled, of which 992 had structural abnormalities at a rate of 12/1000. The overall detection rate at 11-14 weeks was 51% with the highest detection rates for neck abnormalities (92%), followed by the abdomen (88%), brain and spine (51%), heart (48%) and the lowest detection rates (34%) for limb, facial and genitourinary defects. The rate of prenatal detection of cardiac defects was 47% as part of an anatomy scan, and it rose to 53% when fetal echocardiography alone was carried out ($P=0.040$), with no improvement with Doppler utilization. In addition, the rate of detection of structural defects was higher when a combined transabdominal transvaginal examination was carried out (62%) versus a transabdominal (51%) or a transvaginal alone (43%) with $P<0.001$. It was higher in the high risk patient (65%) versus the low risk patient (50%) with $P<0.001$. The authors conclude that the accuracy of ultrasonography at 11-14 weeks is directly related to the organ system under examination since the natural history and the developmental limitations at this point in gestation are the greatest obstacles.



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CFAFC would like to thank Dr. Ahmad El-Sheikhah, Dr. Mark Sklansky and ISUOG Secretariat for their contributions to this issue.

CFAFC Recommends
www.perinatalquality.org

For any interesting case reports, comments, suggestions or announcements to be included in our newsletter, please send an e-mail to rar@cfafc.org.

SANA Medical NGO's 2013 in Review



Despite extremely limited resources, and one of the most challenging years in terms of safety and turmoil, **SANA** had a most successful 2013 with over 30 medical, educational and training missions carried out. In 2013, SANA, with the aid of its dedicated able partners: **Medecins Sans Frontieres**, **World Vision International** among several local charities and NGO's, was able to provide obstetrical care to over 285 underserved Lebanese as well as refugee mothers, not including mothers seen during the training sessions, and nearly half as many in consultations.

In addition, SANA completed the basic sonographic training to 9 midwives and nurses at the Governmental Hospital of Seer Al Dinnieh (GHSD) who were then awarded **ISUOG Outreach** certificates.

SANA has several educational plans underway for 2014 where it is anticipated to commence training in obstetrical antepartum, intrapartum and postpartum care at a local charity hospital in Tripoli, commence sonographic training at a health dispensary in the Akkar area where deliveries are carried out on-site, in addition to further build the technical skills of the team at the Governmental Hospital of Seer Al Dinnieh.

SANA wishes to express its gratitude to ISUOG Outreach and all of its loyal supporters without whom none of this would have been possible...



SANA's Trainees at GHSD



A Sniper's Post on the Way



SANA's Trainees in Akkar



Patiently Waiting



In Spite of it All...

Upcoming Congresses

COURSE TITLE	DATES	LOCATION	WEBSITE ADDRESS
ISUOG's Fetal Anomalies and CNS	Feb 28- Mar 1, 2014	Amsterdam, NL	www.isuog.org/Events/ISUOG+Organised+courses/2014_Febr_Fetal+anomalies+and+CNS.htm
2nd Asia Pacific Perinatal Imaging (US and MRI) Symposium	Mar 15-20, 2014	Vancouver, Canada	www.fetalMRI2014.org
15th Annual Conference of the Dept. of Ob/Gyn, Cairo University	Mar 27-28, 2014	Cairo, Egypt	www.obgynkasralainy.com/
Annual Convention of the American Institute of Ultrasound in Medicine	Mar 29-Apr 2, 2014	Las Vegas, NV	www.aium.org/cme/events/ann2014/ann2014.aspx
Ultrasound Plus: Thorax, Neck & Diaphragm Anomalies:- The Whole Picture	Apr 11-12, 2014	London, UK	www.isuog.org/Events/ISUOG+Organised+courses/2014_April_Ultrasound+plus.htm
5th Annual Fetal Cardiology Symposium	Apr 23-27, 2013	Phoenix, AZ	www.fetalcardio.com
10th International Symposium of ISUOG	Apr 26-28, 2013	Beijing, China	www.isuogbeijing.com/en/index.asp
XXIV European Congress of Perinatal Medicine 2014	Jun 4-7, 2014	Florence, Italy	www.etches.com/ehome/index.php?eventid=77053&
1st Annual Fetal Cardiac Symposium	Jun 5-6, 2014	Chicago, IL	www.fetalcardiacsymposium.com
13th World Congress in Fetal Medicine	Jun 29-July 3, 2014	Nice, France	www.fetalmedicine.com/fmf/courses-congress/conferences/