



Center For Advanced Fetal Care Newsletter

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Unattainable Dream...

...Pains us. Drives us. Motivates us. We keep striving for the unattainable yearning for it to be fulfilled somehow... This is ever so evident in so many aspects of our lives: from dedicating millions to **curing disease** and to **mapping the human brain**, to building **earth-bound vessels**, to believing in the power of every human voice making it possible to **cast a vote** from orbit. Though most of us dream under the brilliance of the **super moon**, many are haunted by their unattainable dreams in broad daylight...

We thus dedicate this issue to the various "unattainable dreams" towards which we dedicate so much energy and concentrate so much effort. We present to you AIUM's "Beyond Ultrasound First" Forum with its noble goal of standardizing education and ensuring quality in Ob/Gyn ultrasound. We bring highlights from ISUOG's World Congress, and specifically its globally live-streamed Basic Training course which aims at ensuring that every probe-handler has the necessary level of skill to deliver the best care possible. We review the latest safety statements from the AIUM and ISUOG on the potential association between first trimester ultrasound and the severity of autism spectrum disorders. We discuss our accuracy in the prenatal diagnosis of congenital heart disease and maternal attitudes towards first trimester screening where many a time, we may deliver news that eradicates hopes and shatters dreams. And though as Wirthlin said "perfection is worth striving for, even if it is ultimately unattainable in this life", we shall continue the fight in a passionate pursuit of the dream "for the credit belongs to the man who is actually **in the arena**".



Unattainable Dream by Issam Elias, DDS

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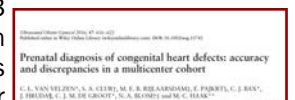
Maternal Attitudes Towards First Trimester Screening

One of our primary clinical concerns is to avoid undue parental anxiety, particularly at early points in gestation. To address this point, Maiz et al have carried out a descriptive study, published in **Prenatal Diagnosis**, in which they analyzed the responses from 300 questionnaires filled by mothers immediately prior to their sonographic examination. The primary outcome of the study was to evaluate maternal attitudes towards screening for congenital malformations at 11-13 weeks according to the severity of the abnormality. There was a 98.7% response rate with 93.9% of mothers wishing to know if a fetal abnormality was detected at 12 weeks. In case of a lethal abnormality, 96.6% wished to know versus 95.3% for an abnormality involving a serious handicap and 91.2% if the abnormality could not be confirmed until 16-20 weeks. On the other hand, only 77% wished to find out at 12 weeks in case of a minor abnormality, and 79.4% in case of a normal fetus. Maternal responses were affected by maternal and gestational ages, as well as maternal attitudes towards termination of pregnancy. As such, the authors conclude that mothers prefer early disclosures on the status of their fetuses at 11-13 weeks irrespective of the severity of the findings.



Accuracies/Discrepancies in Prenatal Diagnosis of CHD

van Velzen et al have recently published a multi-center cohort study at 3 tertiary care centers to assess the accuracy of fetal echocardiography in the prenatal diagnosis of congenital heart disease (CHD). This was published in **UOG**. In their study which included 708 cases, over a 10 year span, on whom prenatal and postnatal data was available, the authors compared the pre- and postnatal findings and classified them as correct, discrepant or no similarity. In 82.1% of cases, the prenatal diagnosis was correct, and in 9.9% it was discrepant but had no impact on outcome. In 8.1%, there was no similarity between the pre- and postnatal findings and this seemed most prominent in those defects with a normal 4-chamber view. The most commonly encountered discrepancies involved the outflow tracts and differentiating an unbalanced AV canal from HLH syndrome. The authors conclude that though prenatal diagnosis of CHD is possible in 92% of cases, in centers with expertise, limitations persist and awareness with education are paramount.



Highlights from the International Society of Ultrasound in Obstetrics & Gynecology's World Congress Held 24 - 28 September 2016 Rome, Italy

It proved to be another outstanding **ISUOG** World Congress as over 2500 delegates from 91 countries gathered in Rome for the **25th World Congress**. And as is customary, the congress commenced with 3 pre-congress workshops which included "Transvaginal Ultrasound in Gynecological Oncology", "Emerging Technologies in Prenatal Diagnosis" (organized in partnership with ISPD) and "ISUOG Basic Training Course". Perhaps the biggest challenge to the attendees was trying to decide what to attend: there were daily Masterclasses with the experts, poster discussion hubs, oral communication sessions and hands-on workshops. For the first time this year, there was a joint ISUOG-CFEF (French College of Fetal Ultrasound) hands-on workshop made available to the attendees where they got the opportunity to work on machines of their choice, in small groups of 5, under the guidance of ISUOG/CFEF trainers. Another successful workshop involved simulation for ultrasound-guided needle procedures and was organized in partnership with Wake Forest University. Lebanon was well represented again this year with many Lebanese in attendance, and several abstracts presented. In addition, Imad Aboujaoude, MD was an invited speaker at the interactive Hub entitled "Social Media for Education and Clinical Purposes". He presented the Lebanese experience and particularly the utility of "WhatsApp" in facilitating communication, consultation and education. Interestingly, he commenced the World Congress in Lebanon where, for the second year in a row, **SANA Medical NGO** together with **Aboujaoude Hospital** live-streamed the ISUOG Basic Training Pre-Congress Course, and then he flew to Rome to participate in the congress.



ISUOG Rome 2016



Basic Training Lebanon Satellite

The **live-streaming in Lebanon** was a phenomenal success as 64 delegates gathered at the Aboujaoude Hospital's Auditorium. There was a unique mix of attendees who came from all over Lebanon: Radiologists, Ob/Gyn physicians, Radiology and Ob/Gyn residents as well as midwives. It proved to be a brilliant succession of comprehensive lectures given by world-leaders in the field: Drs. Abuhamad, Chudleigh, Cohen-Overbeek, Haak, Johnson, Moe Eggebo, Valentin and Youssef covered all the basic aspects of scanning in Ob/Gyn. They managed to leave the delegates with a wealth of practical tips and pearls which were the result of vast expertise condensed in the most comprehensible manner. The delegates were eager for more with many inquiring about the possibility of live-streaming more structured activities from ISUOG.

Plans are currently underway for the **26th World Congress** which is coming to Vienna September 16 - 19, 2017. For more details on abstract submission and registration, visit the **ISUOG Website**.

Highlights from the American Institute of Ultrasound in Medicine's "Beyond Ultrasound First" Forum Held in Boston, MA October 31, 2016

The **AIUM**, under its President Dr. Beryl Benacerraf, held its "**Beyond Ultrasound First**" Forum in Boston. This was a world-class event where representatives from over 24 key medical societies as well as the industry gathered for a full day of presentations and break out sessions in order to set the bar for training in Ob/Gyn ultrasound. The Forum's ultimate goal was standardizing training and ensuring quality.

Dr. Benacerraf commenced the day by welcoming the attendees and sharing with the audience that this was the "signature initiative" of her 2-year tenure as AIUM President. She had entrusted this most demanding initiative to Dr. Alfred Abuhamad who had brilliantly chaired a special task force of multi-society (AIUM, ACOG, ACOOG, ACR, ISUOG, SMFM and SRU) national and international experts in order to devise a standardized ultrasound training curriculum and competency assessment for residency programs.

The morning was most intense with comprehensive presentations from pioneers in the field. Dr. Abuhamad discussed the current status of training in the USA and the key components of the curriculum. Dr. Benacerraf presented the role of ultrasound in Gyn, Dr. Savitsky discussed the future of competency assessment and the role of simulation, whereas Dr. Scarborough presented views from the payers. Dr. Bromley then reviewed the role of accreditation and Dr. Pellerito discussed how to raise the level of ultrasound in a large health system. Dr. Lee, whom Dr. Benacerraf had appointed to chair the complementary ultrasound lecture series, then discussed the lecture series in detail. The group subsequently went into breakout sessions where the participants brain-stormed and put together their recommendations addressing 4 major areas: implementation, maintaining competency, enforcing ultrasound first and expanding the use of ultrasound. The moderators for each of the 4 breakout sessions then presented their recommendations to the group: the take home message was that this outstanding initiative may be applicable not only to residents in Ob/Gyn but also those in other specialties. It may be utilized by practicing physicians with various levels of skill. It can be tailored to fit the needs of the various trainees. And what is most unique is that the entire curriculum and lecture series will be made available as free open-access to all where it shall hopefully serve as the template for developing similar curricula for all aspects of medical sonography. Thank you AIUM, thank you Drs. Benacerraf, Abuhamad and Lee!



A. Abuhamad, MD & B. Benacerraf, MD



E. Savitsky, MD

CFAFC Recommends: The AIUM's and ISUOG's Statements on FTS and Autism

A recently published paper by Webb et al on **autism** has raised concern about the association between the severity of autism spectrum disorders (ASD) and exposure to ultrasound in the first trimester. The study involved 1749 fetuses with a genetic predisposition (ASD associated copy-number variants) to the development of ASD. However, the duration of exposure, type of sonographic modality used and exposure later on in gestation were not accounted for. ASD severity was determined using cognitive and social abilities as well as repetitive behaviors.

As a response, both the **AIUM** (American Institute of Ultrasound in Medicine) and **ISUOG** (International Society of Ultrasound in Obstetrics & Gynecology) have issued respective statements on the matter.

On September 7, the **AIUM Bioeffects Committee issued a statement** in which they concluded that: "In summary, the results of the study do not demonstrate a causal link between ultrasound and autism. Ultrasound examinations can be safely performed by educated and credentialed sonographers and clinicians when medically indicated and when the ALARA (as low as reasonable achievable) principle is followed."

On September 20, the **ISUOG Bioeffects and Safety Committee issued a statement** in which they concluded that "that there is no scientifically proven association between ultrasound exposure in the first or second trimesters and ASD, or its severity. Sonograms can be preformed safely during pregnancy by trained and accredited sonologists, when medically indicated and when the ALARA principle on the use of ultrasound intensities is employed. Since, in Doppler mode, relatively high intensities are usually transmitted, ISUOG (and other ultrasound organizations) recommends that pulsed Doppler (spectral, power and color-flow imaging) ultrasound not be used routinely in early pregnancy. When performing Doppler ultrasound in the first trimester on clinical grounds, the displayed thermal index should be ≤ 1.0 and exposure time should be kept as short as possible."



AIUM 7 September 2016



ISUOG 20 September 2016

THIS AND THAT

Upcoming FMF Advances Course



The **Fetal Medicine Foundation's** annual **Advances Course** is set to take place in London on December 3-4, 2016. Though the program is not yet available, this course tends to provide the attendee with an intense update and recaps the latest in fetal medicine. It is delivered by leaders in the field. Registration fee is a mere 150 pounds. For more details on registration and the upcoming program, visit the **FMF Website**.

Upcoming SMFM "Pregnancy Meeting"



The **"Pregnancy Meeting"** is coming to Las Vegas January 23-28, 2017. The meeting commences with 2.5 days of pre-congress courses and workshops covering such areas as prenatal genetics, critical care, innovations in medical education, simulation for invasive procedures and critical care, Zika virus, cervical length and preterm birth among many others. For further details and to register, visit the **SMFM Website**.

Upcoming 1st WMFNM



Several European societies, represented by distinguished experts, have put together the very first **WMFNM** (World Congress in Maternal Fetal Neonatal Medicine). It will be held in London April 24-26, 2017. The 3 day congress commences with pre-congress workshops focusing on the first trimester scan, viral infections, safe motherhood, developmental origin of adult disease and preterm neonatal resuscitation. Varied scientific sessions follow for 2 days. Further information at the **WMFNM Website**.

SANA Update



It has been an eventful Fall for **SANA** with the completion of training and certification to 2 physicians: **Ghina Mahmoud, MD** and **Huda Barakat, MD**, and with ongoing continued training to several midwives. In addition, SANA partnered again with Aboujaoude Hospital and **live-streamed** ISUOG's BT Course from Rome to 64 attendees of various backgrounds (Ob/Gyn and Radiology physicians/residents as well as midwives) who came from all over Lebanon. Finally, and in collaboration with University of Balamand, SANA held **"Unattainable Dream"** October 18-22, 2016. This was an art exhibit by Dr. Issam Elias and he donated all proceeds to SANA.

CFAFC News



CFAFC's Reem S. Abu-Rustum was invited as the first speaker for the newly-founded "North Society of Ob/Gyn" in Tripoli October 19 where she presented "Back to the Basics: Sonographic Milestones from Conception to the NT". She had the honor of participating in the **AIUM BoG** meeting and attended the AIUM's **"Beyond Ultrasound First"** Forum in Boston.

Hot-Off-The-Press

ORIGINAL ARTICLE

Dilated cavum septi pellucidi in fetuses with microdeletion 22q11

Robih Chaoui^{1*}, Kai-Sven Helling¹, Yili Zhao², Elena Sinkovskaya², Alfred Abuhamad² and Katrin Karl³

DiGeorge Syndrome (deletion 22q11) is the most common deletion in humans. It is the most common chromosomal abnormality in infants with congenital heart defects (CHD) secondary only to trisomy 21. Today, though certain laboratories offer NIPT screening for it, a high index of suspicion is needed in order to rule it out. From Chaoui, who first discussed the role of the thymic/thoracic ratio as a sonographic marker for deletion 22q11, comes the new sonographic marker: dilated cavum septum pellucidi (CSP). This study was recently published in the journal **Prenatal Diagnosis**.



Figure 1: Axial Transventricular Plane



Figure 2: Ventricular Septal Defect

In this retrospective case-control study, Chaoui et al evaluated the width of CSP as a function of BPD in 260 normal fetuses at 16-34 weeks of gestation, and 37 fetuses with confirmed deletion 22q11 with various CHD. The width of the CSP was obtained in the axial transventricular plane with the calipers placed on the inner borders (Figure 1). There was a significant linear relationship between the CSP and the BPD. Z-scores were calculated. In the fetuses with deletion 22q11, there was a statistically increased CSP > 95th centile in 25/37 (67.5%) of cases. This was more pronounced in fetuses beyond 22 weeks who had a BPD of more than 50 mm: in this subgroup the CSP was increased in 24/28 (85.7%).

We retrospectively assessed the CSP as a function of BPD in one of our fetuses with confirmed deletion 22q11 (Figures 1 and 2) on whom the thymic/thoracic ratio had been normal. The CSP was indeed > 95th centile: it was 6.8 mm for a BPD of 76.8 mm.

The authors discuss the retrospective limitations of this study and potential selection bias, in their centers of excellence with advanced expertise in fetal echocardiography, as this is a high risk fetal population for CHD and genetic abnormalities. They call for validation of their findings in a low risk population. Nonetheless, they stress the clinical role of a dilated CSP in raising suspicion for deletion 22q11 particularly in the presence of underlying CHD.



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CFAFC expresses its sincerest appreciation to all of our contributors. For any interesting case reports, comments, suggestions or announcements, please send an e-mail to rar@cfafc.org.

“Desire, burning desire, is basic to achieving anything beyond the ordinary.”

John Wirthlin

Kindly note that all colored text contains embedded ‘**clickable**’ links.

Upcoming Congresses

COURSE TITLE	DATES	LOCATION	WEBSITE ADDRESS
1st Advanced and Basic Ultrasound Workshop	Nov 9 - 10, 2016	Riyadh, Saudi Arabia	https://www.kfshrc.edu.sa/en/home/events/1368
5th International Fetal Growth Meeting	Nov 17 - 19, 2016	Toronto, Canada	http://www.fetalgrowth2016.ca
Advanced First Trimester Ultrasound	Nov 25 - 26, 2016	Cracow, Poland	http://www.ultrasoundcracow.com/dates-agendas/
4th Annual Advances in Prenatal Molecular Diagnostics	Nov 29 - Dec 1, 2016	Boston, MA	http://www.healthtech.com/prenatal-diagnostics/
25th Annual OB-GYN Ultrasound Update for Clinical Practice	Dec 1 - 4, 2016	Lago Mar, FL	http://www.cmebyplaza.com/Default3.aspx
Advances in Fetal Medicine	Dec 3 - 4, 2016	London, UK	https://fetalmedicine.org/fmf-advances-course
Pregnancy Meeting	Jan 23 - 28, 2017	Las Vegas, NV	https://www.smfm.org/meetings/2-37th-annual-pregnancy-meeting
40th Annual Advanced Ultrasound Seminar in Ob/Gyn	Feb 16 - 18, 2017	Orlando, FL	http://www.aium.org/cme/events/sem2017/sem2017.aspx
Annual Convention of the American Institute of Ultrasound in Medicine	Mar 25 - 29, 2017	Orlando, FL	http://www.aium.org/annualConvention
1st World Congress on Maternal Fetal Neonatal Medicine	Apr 23 - 26, 2017	London, UK	http://www.worldmfm.eu/

Left BCV in the Prenatal Diagnosis of TAPVR. By Drs. Mahmoud, Ward, Daou & Abu-Rustum

We present the case of a 31 year old female, gravida 4 para 1021, with antiphospholipid syndrome, referred at 26w3d for a right sided stomach and abnormal outflow tracts.

Upon evaluation, there were several findings including a right sided stomach (Figures 1, 2), an unbalanced AV canal (Figure 3), a small left ventricle, a single non-bifurcating large vessel exiting the right ventricle, and total anomalous pulmonary venous return (TAPVR) exemplified by a clearly visible supracardiac collecting vessel (CV Figure 4). In addition, the left brachiocephalic vein measured 4.5 mm in width (> 95th centile for GA), suggestive for TAPVR (Figure 5).

The diagnosis of heterotaxy with right atrial isomerism and a complex cardiac defect was discussed with the family and confirmed antenatally by pediatric cardiology. The family opted for expectant management and delivered a liveborn male at 36w4d weighing 2560 grams. Postnatally, the findings were confirmed. The family declined surgical intervention due to religious beliefs and unacceptability of any blood transfusions.

Our case attests to the role of the left brachiocephalic vein in ascertaining the diagnosis of TAPVR. Measuring the width of the left BCV is feasible. Comparing it against the established normogram of Sinkovskaya et al proves helpful in these challenging cases.

This case was presented as an ePoster at AIUM 2016, NY.



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5