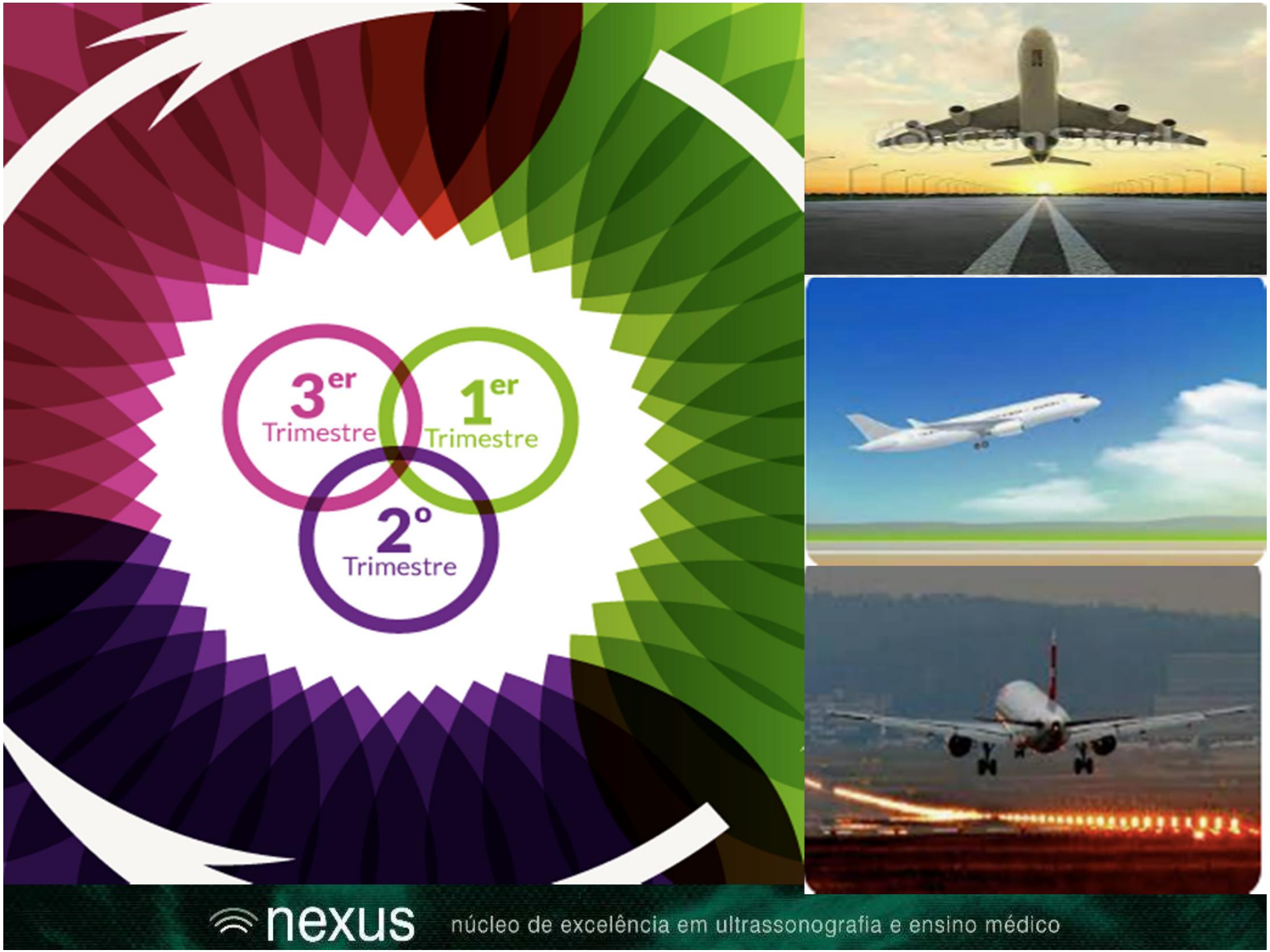
I CONGRESSO INTERNACIONAL DE NEONATOLOGIA DO DF

ECOGRAFIA GESTACIONAL: O QUE ELA PODE DIZER AO NEONATOLOGISTA

EVALDO TRAJANO FILHO

www.paulomafgotto.com.br

Brasília, 1 de dezembro de 2022

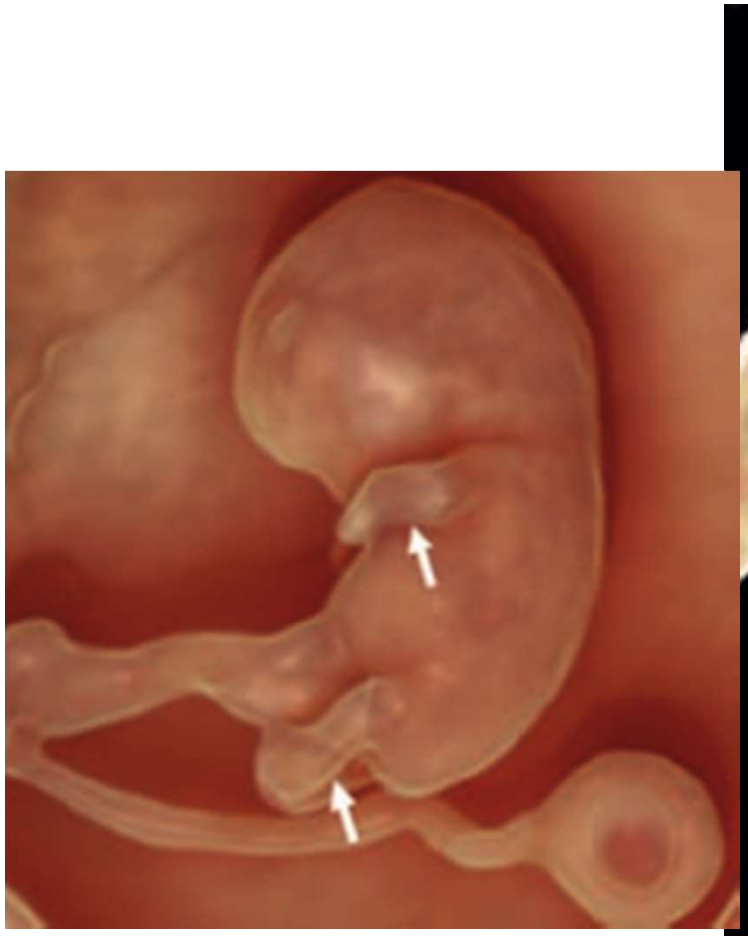

3er Trimestre
1er Trimestre
2º Trimestre
nexus
núcleo de excelência em ultrassonografia e ensino médico

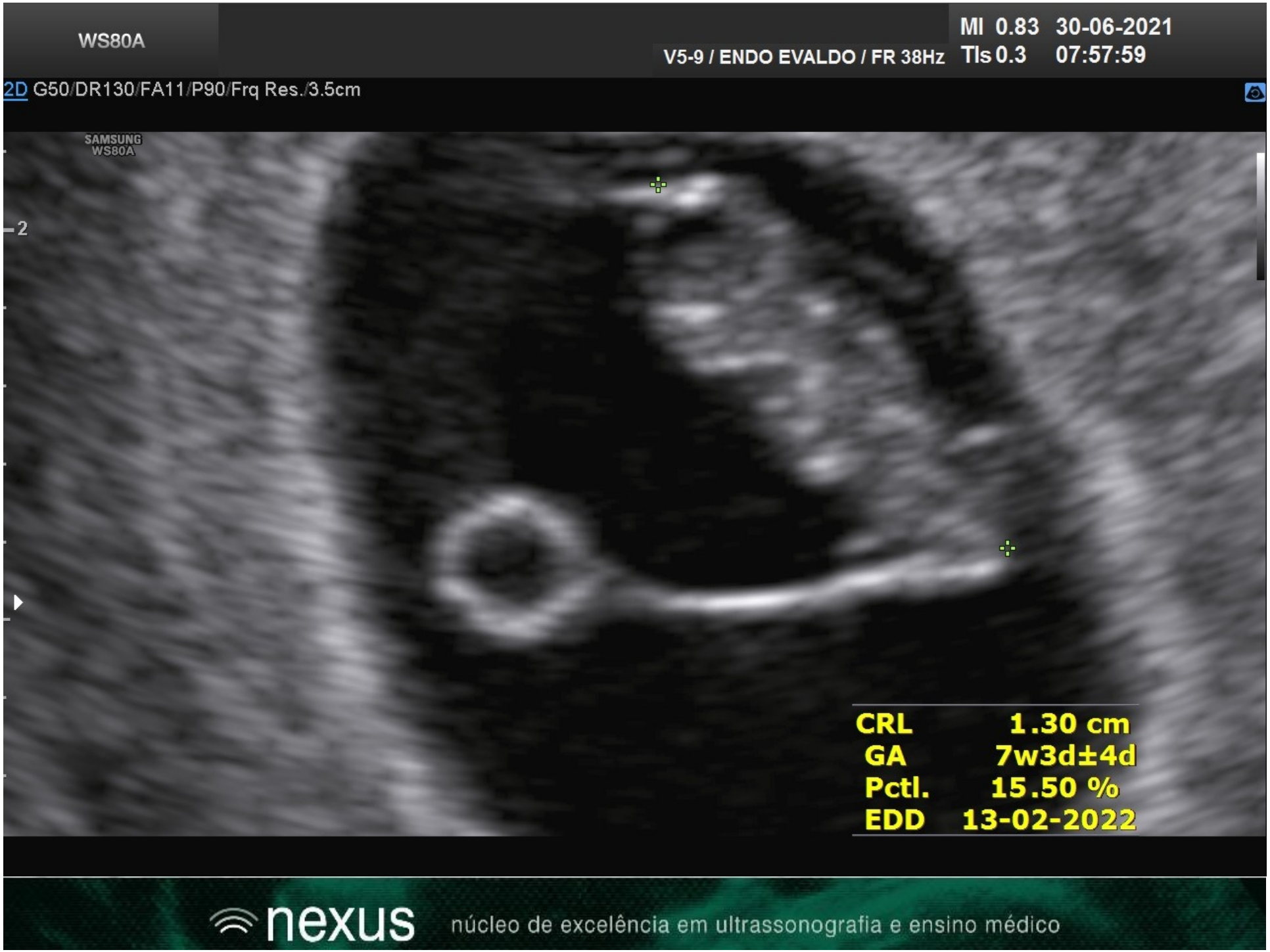
Turning the Pyramid of Prenatal Care

Kypros H. Nicolaides[a, b]

[a]Harris Birthright Research Centre of Fetal Medicine, King's College Hospital, and [b]Department of Fetal Medicine, University College Hospital, London, UK

SONOEMBRIOLOGIA




WS80A
MI 0.83 30-06-2021
V5-9 / ENDO EVALDO / FR 38Hz TIs 0.3 07:57:59
2D G50/DR130/FA11/P90/Frq Res./3.5cm
SAMSUNG
WS80A
CRL 1.30 cm
GA 7w3d±4d
Pctl. 15.50 %
EDD 13-02-2022
nexus
núcleo de excelência em ultrassonografia e ensino médico

The NEW ENGLAND JOURNAL of MEDICINE

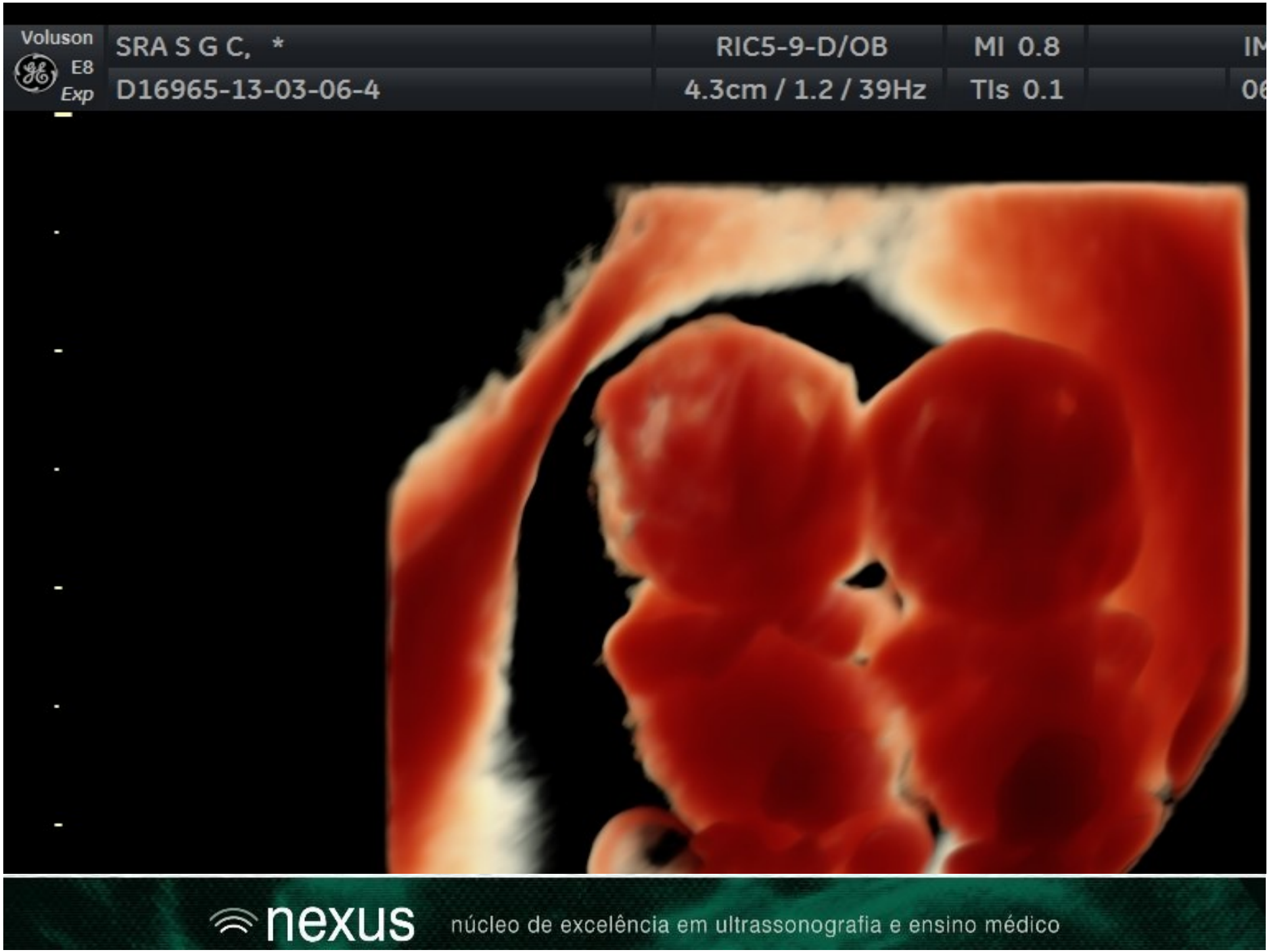
REVIEW ARTICLE

CURRENT CONCEPTS

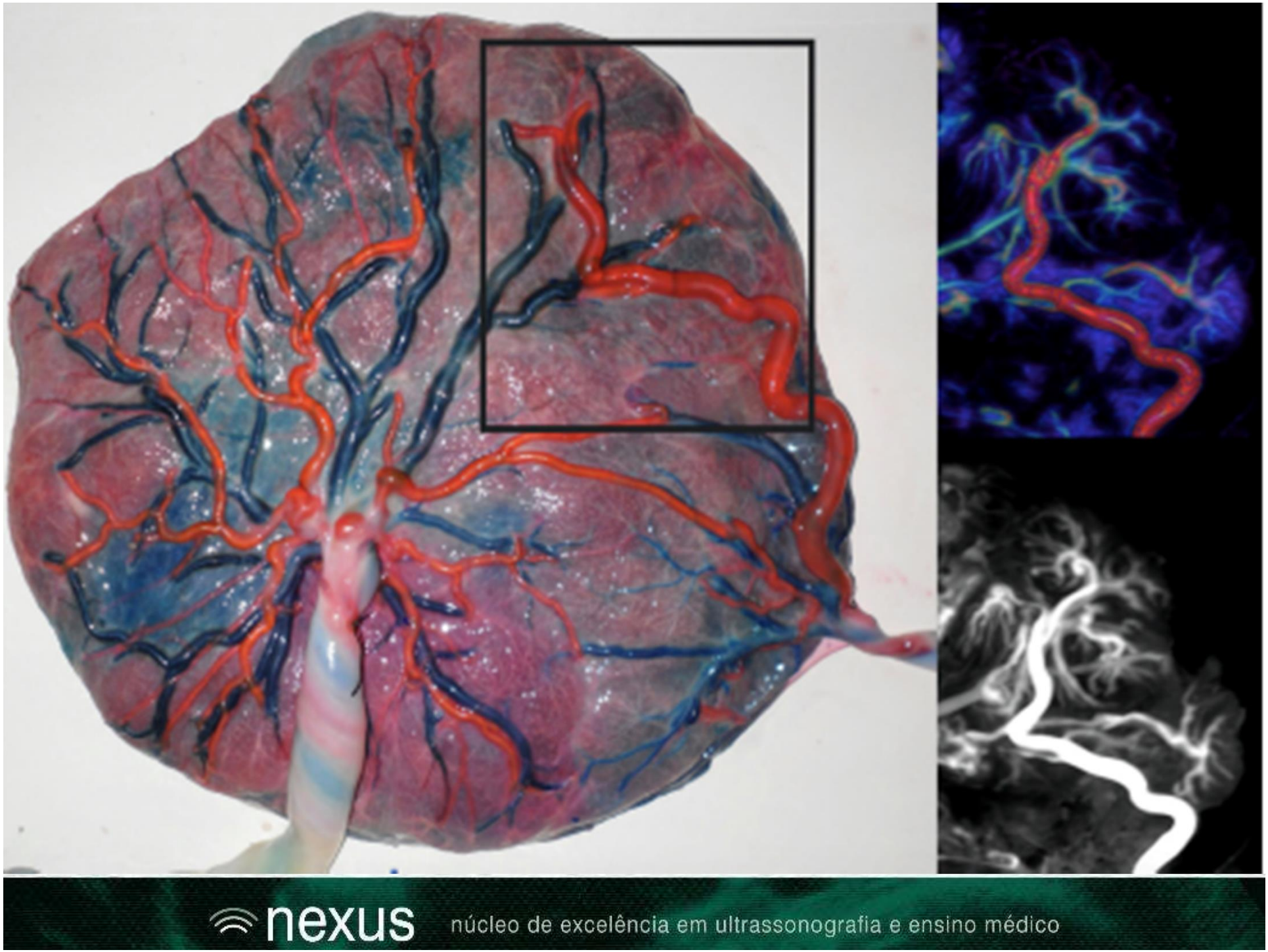
Edward W. Campion, M.D., *Editor*

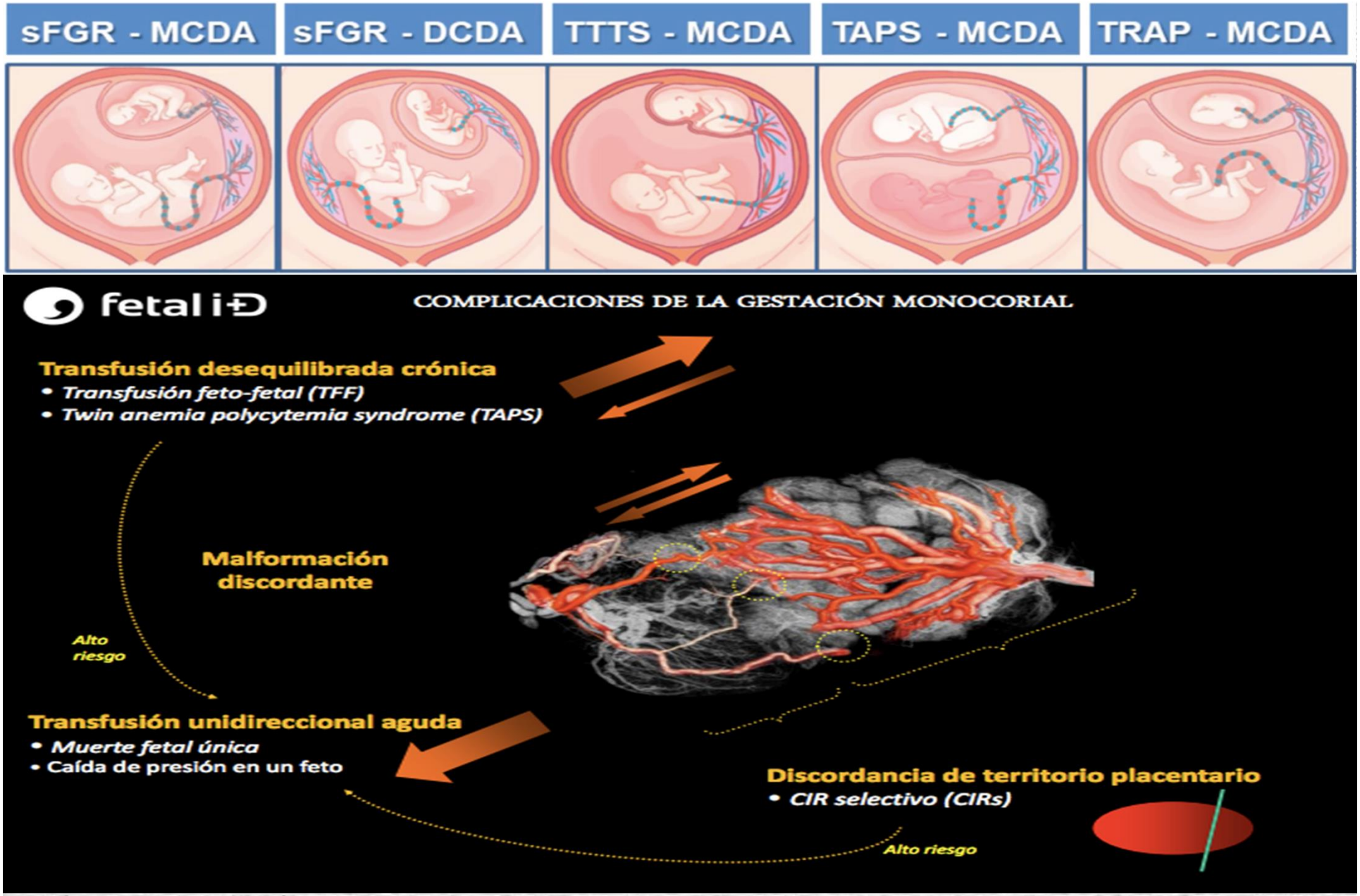
Diagnostic Criteria for Nonviable Pregnancy Early in the First Trimester

Peter M. Doubilet, M.D., Ph.D., Carol B. Benson, M.D.,
Tom Bourne, M.B., B.S., Ph.D., and Michael Blaivas, M.D., for the Society of
Radiologists in Ultrasound Multispecialty Panel on Early First Trimester Diagnosis
of Miscarriage and Exclusion of a Viable Intrauterine Pregnancy*


Voluson
E8
Exp
SRA S G C, *
D16965-13-03-06-4
RIC5-9-D/OB
4.3cm / 1.2 / 39Hz
MI 0.8
TIs 0.1
nexus
núcleo de excelência em ultrassonografia e ensino médico

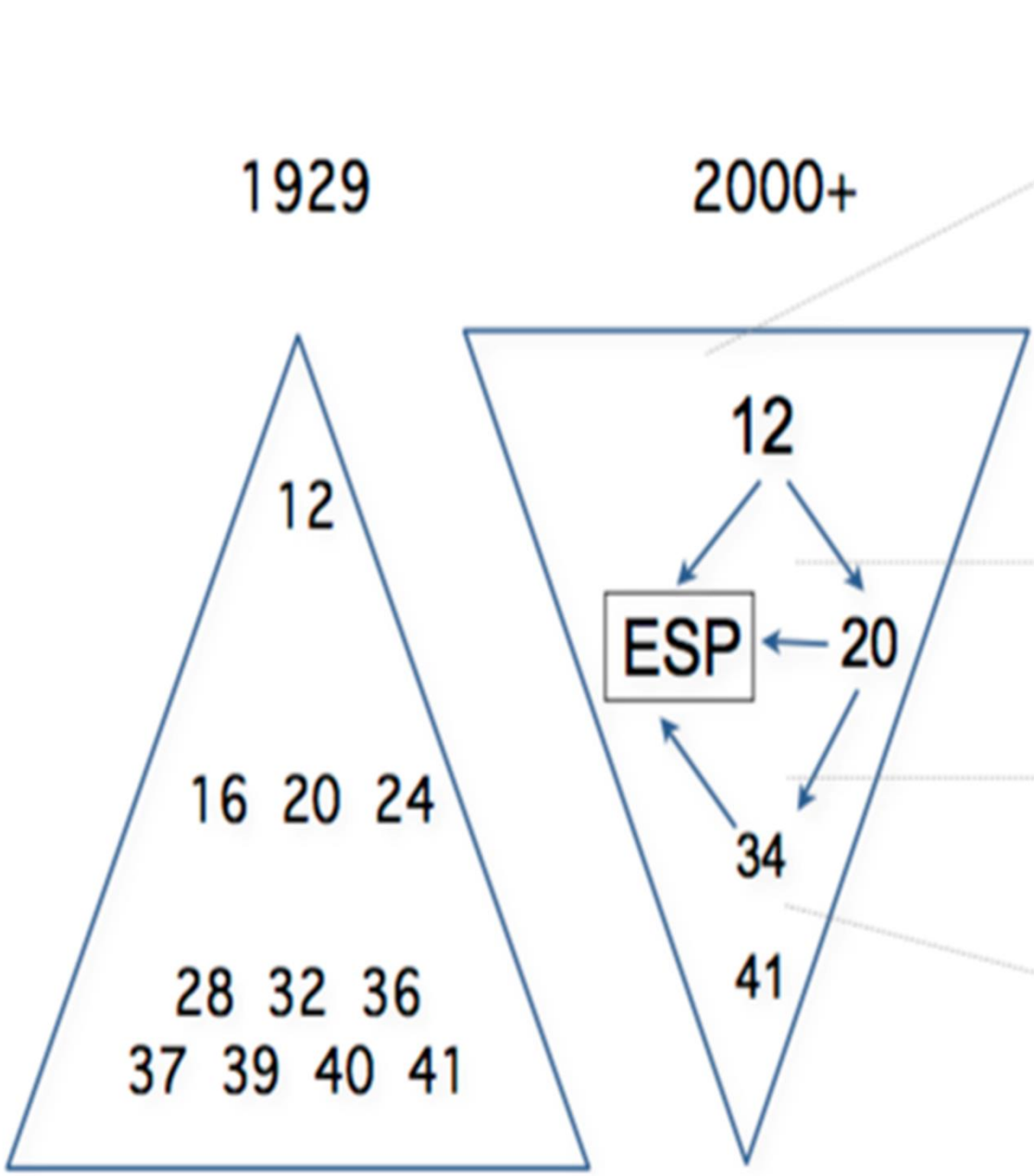
CORIONICIDADE


nexus
núcleo de excelência em ultrassonografia e ensino médico



E. Gratacós a J.U. Ortiz a, b J.M. Martinez a

Fetal Diagn Ther 2012;32:145–155

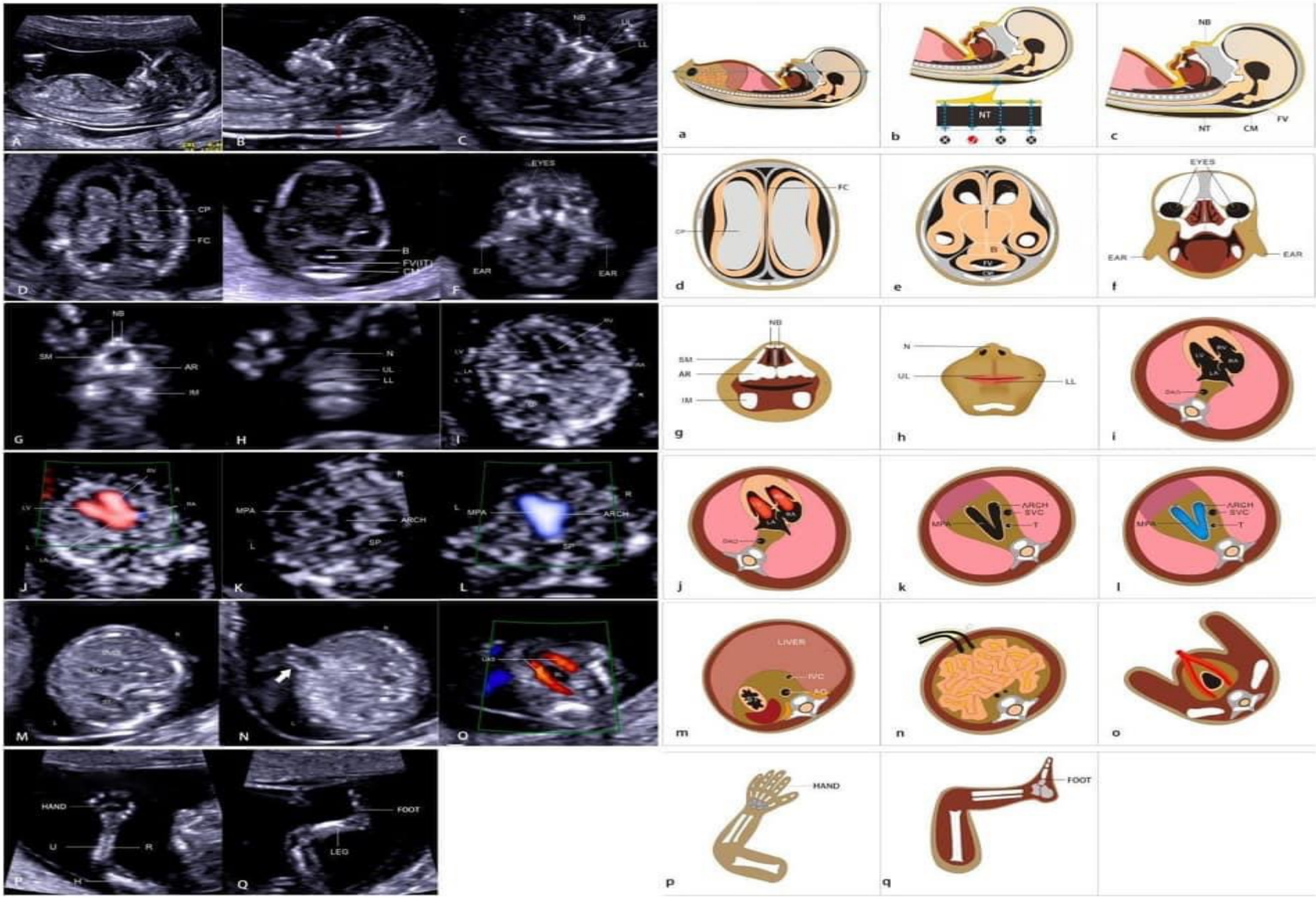


- 70% malformaciones
- Anomalías crómosómicas
- Preeclampsia/CIR precoz
- Prematuridad
- Diabetes

- 85% malformaciones
- Prematuridad / Diabetes

- Preeclampsia tardía
- CIR tardío


WS80A
07/07/2017, 13w0d
SRA K F
CDUS
CV1-8A / OB 1 TRIM / FR33Hz
MI 1.
TIs 0.
2D G51/DR113/FA11/P75/Frq Res./7.4cm/PG6
SAMSUNG
WS80A
5
nexus
núcleo de excelência em ultrassonografia e ensino médico


A
B
C
NB
UL
LL
a
b
NT
c
NT
CM
FV
D
CP
FC
E
B
FVIII
CM
F
EYES
EAR
EAR
d
FC
CP
e
B
FV
CM
f
EYES
EAR
EAR
G
NB
SM
AR
IM
H
N
UL
LL
I
RV
LV
LA
RA
g
NB
SM
AR
IM
h
N
UL
LL
i
RV
LV
LA
DAO
J
RV
LV
RA
LA
K
R
MPA
ARCH
SP
L
L
MPA
ARCH
SP
R
j
LV
LA
DAO
k
ARCH
SVC
MPA
T
l
ARCH
SVC
MPA
T
M
N
O
UAO
m
LIVER
IVC
AO
n
o
P
HAND
U
R
H
Q
FOOT
LEG
p
HAND
q
FOOT

The Fetal Medicine Foundation

Prenatal diagnosis of fetal defects

Routine screening at 11-13w

n=100,997

Defect	Always	Mostly	Occasionally	'Never'
CNS	Acrania, holoprosencephaly	Spina bifida	Posterior fossa	Ventriculomegaly, ACC / SOD
Skeleton	Body stalk	Skeletal lethal, arthrogryposis, amputations	Abnormal digits	Talipes
Face			Cleft lip & palate	
Thorax			CDH	CPAM
Heart	Pulmonary or tricuspid atresia	HLH, AVSD, complex, LAI	TOF, TGA, CoA, TD	VSD, PS, AS, Tumour, Arrhythmia
Abdomen	Exomphalos, gastroschisis		Abdominal cyst	Bowel atresia
Urogenital		LUTO	Renal agenesis, multicystic kidneys	Hydronephrosis, genital defects

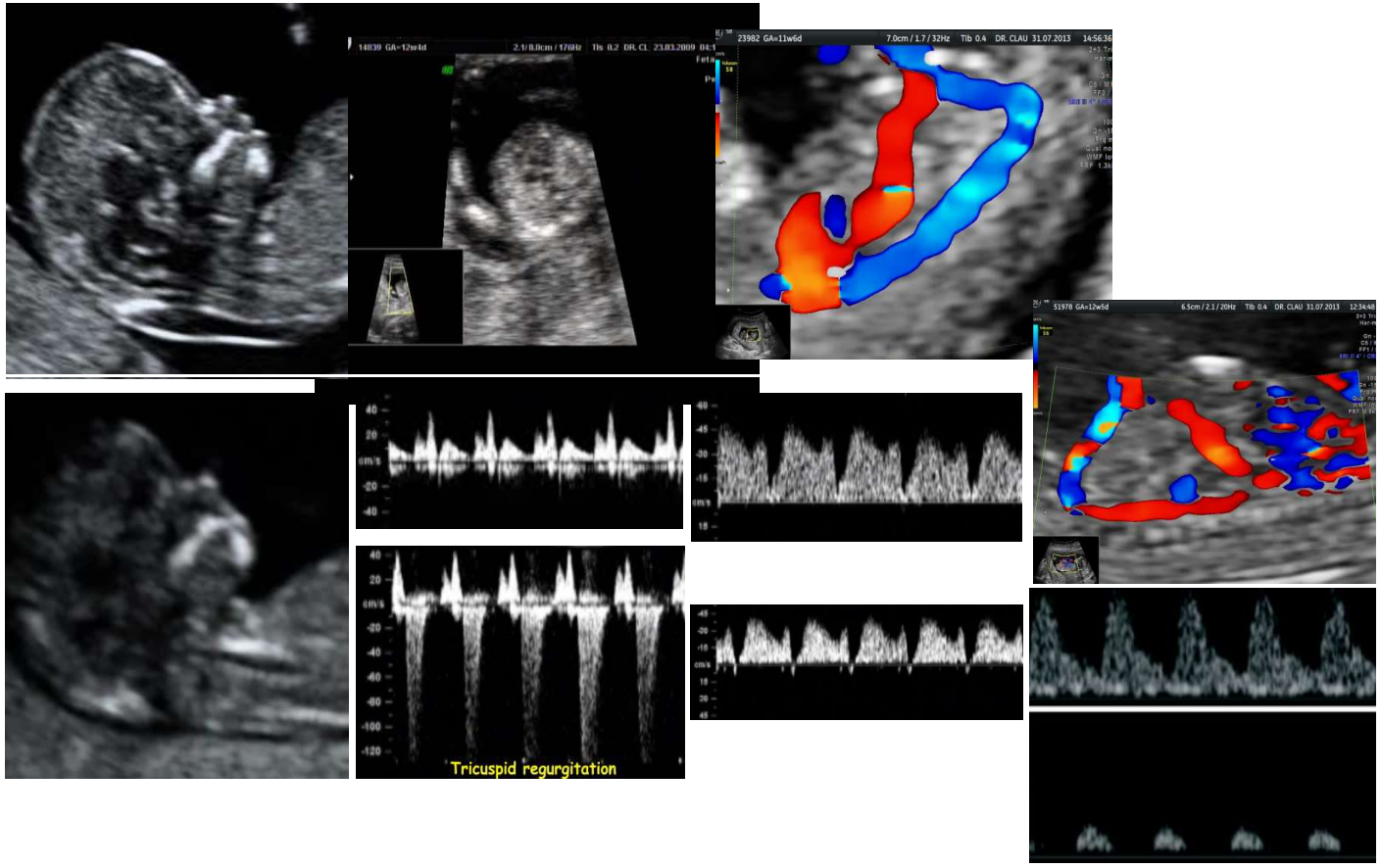
Souka AP, Snijders RJ, Novakov A, Soares W, Nicolaides KH. Defects and syndromes in chromosomally normal fetuses with increased nuchal translucency thickness at 10-14 weeks of gestation. Ultrasound Obstet Gynecol **1998**; 11: 391-400.

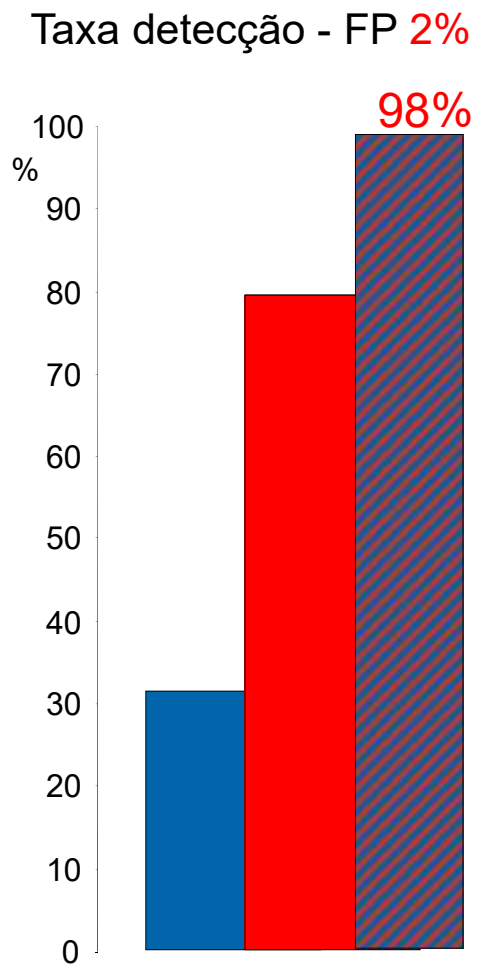
Syngelaki A, Hammami A, Bower S, Zidere V, Akolekar R, Nicolaides KH. Diagnosis of fetal non-chromosomal abnormalities at routine ultrasound examination at 11-13 weeks' gestation. Ultrasound Obstet Gynecol **2019**

The Fetal Medicine Foundation

Detecção precoce de Aneuploidias

Idade, ultrassom “ampliado” e ß-hCG & PAPP-A





RASTREAMENTO

- MARCADORES
- FERRAMENTA PROPEDÊUTICA
- TESTES INVASIVOS

Rastreamento combinado 11-14s
N = 26941

Alto risco (> 1 em 100)

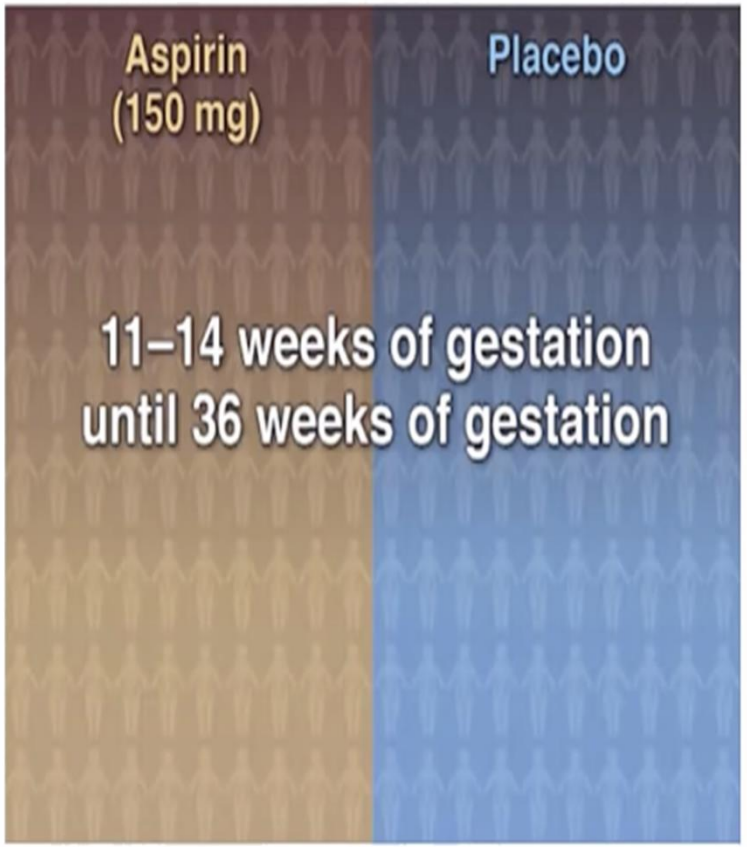
Aspirina
N = 798

Placebo
N = 822

150 mg/d
12 - 36 s

13 centros europeus

Espanha: Murcia, Granada, Tenerife
Bélgica: Bruxelas
Grécia: Atenas
Itália: Milão
Inglaterra: 6 hospitais NHS
Israel: Tel-Aviv



The NEW ENGLAND JOURNAL of MEDICINE

ASPRE project

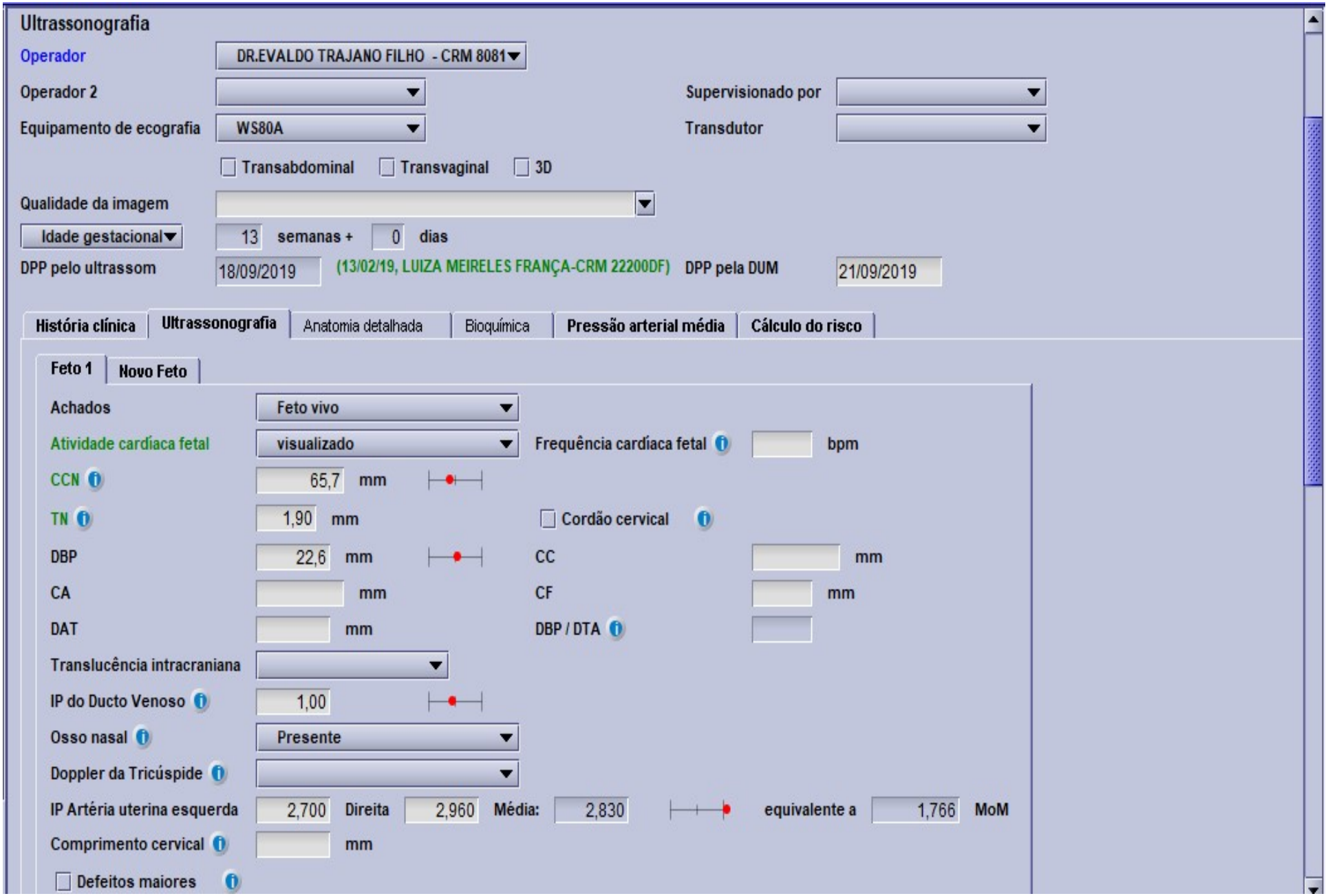
Rolnik DL, Wright D, Poon L, et al. Aspirin versus placebo in pregnancies at high risk of preterm preeclampsia. N Engl J Med 2017

Estudio ASPRE

The NEW ENGLAND JOURNAL of MEDICINE

ASPRE project

Rolnik DL, Wright D, Poon L, et al. Aspirin versus placebo in pregnancies at high risk of preterm preeclampsia. N Engl J Med 2017


Ultrassonografia
Operador
DR.EVALDO TRAJANO FILHO - CRM 8081
Operador 2
Supervisionado por
Equipamento de ecografia
WS80A
Transdutor
Transabdominal
Transvaginal
3D
Qualidade da imagem
Idade gestacional
13 semanas + 0 dias
DPP pelo ultrassom
18/09/2019
(13/02/19, LUIZA MEIRELES FRANÇA-CRM 22200DF)
DPP pela DUM
21/09/2019
História clínica
Ultrassonografia
Anatomia detalhada
Bioquímica
Pressão arterial média
Cálculo do risco
Feto 1
Novo Feto
Achados
Feto vivo
Atividade cardíaca fetal
visualizado
Frequência cardíaca fetal
bpm
CCN
65,7 mm
TN
1,90 mm
Cordão cervical
DBP
22,6 mm
CC
mm
CA
mm
CF
mm
DAT
mm
DBP / DTA
Translucência intracraniana
IP do Ducto Venoso
1,00
Osso nasal
Presente
Doppler da Tricúspide
IP Artéria uterina esquerda
2,700
Direita
2,960
Média:
2,830
equivalente a
1,766
MoM
Comprimento cervical
mm
Defeitos maiores

História clínica | Ultrassonografia | Anatomia detalhada | Bioquímica | Pressão arterial média | Cálculo do risco

Operador FMF: EVALDO TRAJANO Código FMF do operador: 63950

☑ paciente orientada e consentimento dado

Calcular

Operador FMF: EVALDO TRAJANO, FMF Id: 63950

Condição	*Risco basal*	*Risco corrigido*
Trissomia 21	1: 308	1: 6165
Trissomia 18	1: 759	1: 13882
Trissomia 13	1: 2380	<1: 20000
Pré-eclâmpsia antes de 34 semanas		1: 263
Restrição no crescimento fetal antes de 37 semanas		**1: 94**

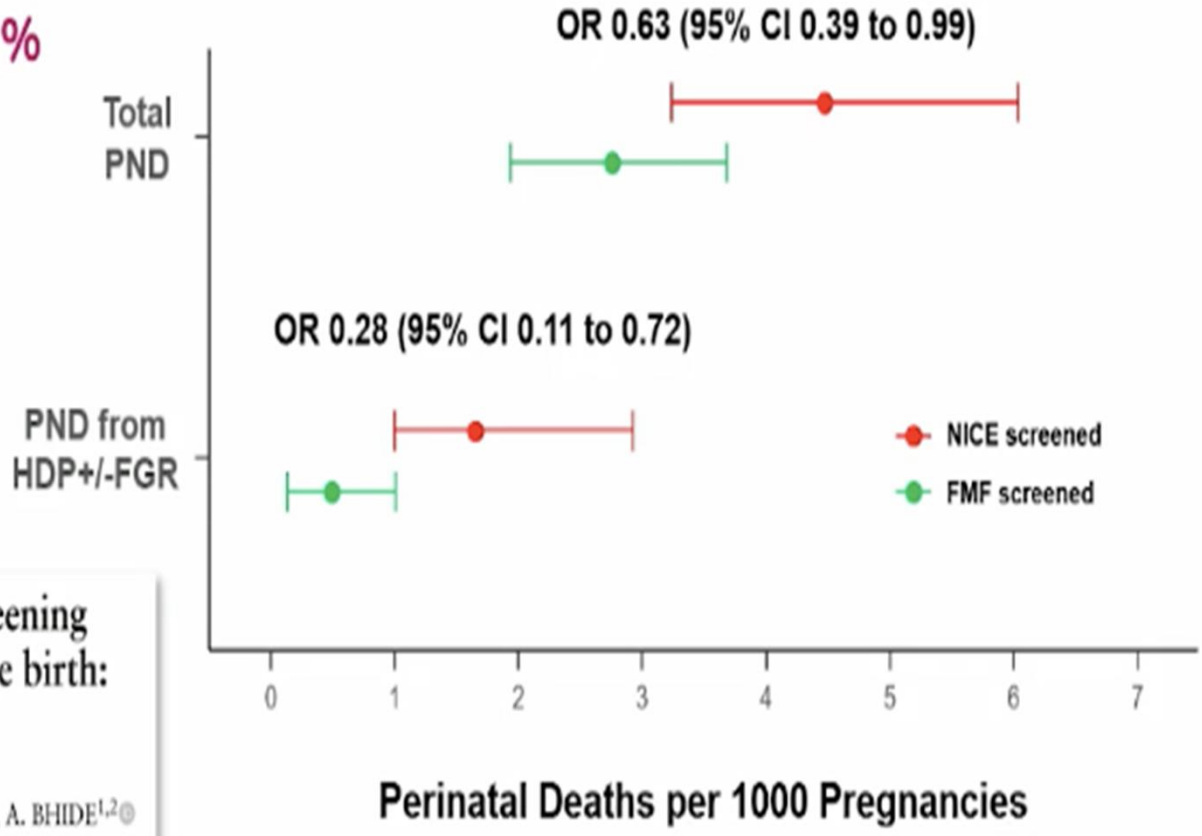
O risco basal para aneuploidias é baseado emna idade materna (34 anos). O risco corrigido é o risco no momento do rastreio, calculado a partir do risco basal e fatores ultrassonográficos (medida da translucência nucal fetal, nos ossos nasais, no Doppler do ducto venoso).

O risco para pré-eclâmpsia e restrição do crescimento fetal são baseados em características demográficas materna, história obstétrica e médica, Doppler da artéria uterina e Pressão arterial média (PAM). O risco ajustado para PE < 34 semanas ou o risco ajustado para RCIU < 37 semanas está entre os 10% mais altos da população.

Todas as medianas dos marcadores biofísicos foram ajustados de acordo com vários parâmetros maternos, tais como, o grupo étnico, o peso, a altura, os hábitos tabagísticos, o método de concepção e

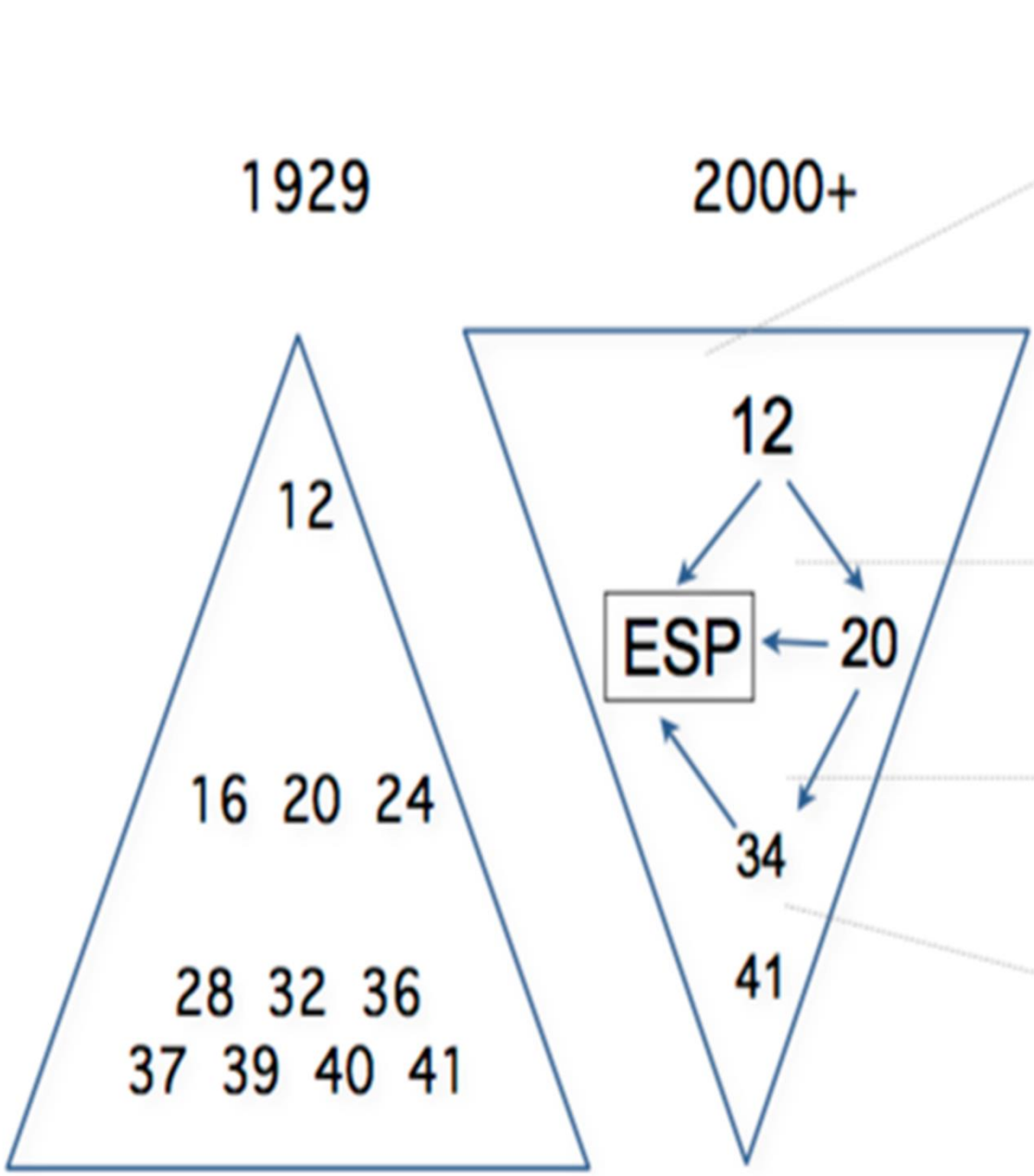
❑ Significant reduction in adverse outcomes

- Preterm preeclampsia ↓80%
- SGA <10th centile at term ↓40%
- Perinatal death (PND) ↓37%
- PND with FGR/PE* ↓72%



Effect of routine first-trimester combined screening for pre-eclampsia on small-for-gestational-age birth: secondary interrupted time series analysis

G. P. GUY[1,2], K. LESLIE[1,3], D. DIAZ GOMEZ[1], K. FORENC[1], E. BUCK[1], A. BHIDE[1,2] and B. THILAGANATHAN[1,2,4]



- 70% malformaciones
- Anomalías crómosómicas
- Preeclampsia/CIR precoz
- Prematuridad
- Diabetes

- 85% malformaciones
- Prematuridad / Diabetes

- Preeclampsia tardía
- CIR tardío

isuog.org

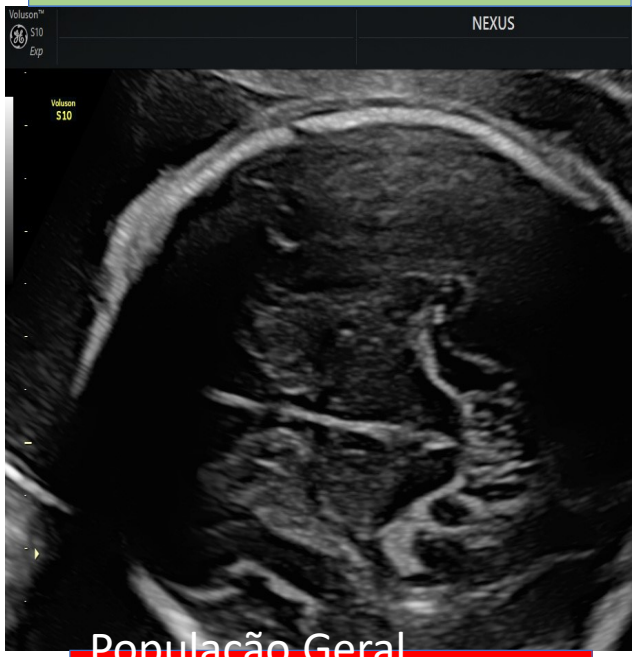
GUIDELINES

ISUOG Practice Guidelines (updated): performance of the routine mid-trimester fetal ultrasound scan

Head	Intact cranium
	Head shape normal
	Cavum septi pellucidi normal in appearance
	Choroid plexus normal in appearance
	Midline falx normal in appearance
	Thalami normal in appearance
	Lateral cerebral ventricles normal in appearance
	Cerebellum normal in appearance
	Cisterna magna normal in appearance
	Nuchal fold* normal in appearance
Face	Both orbits and bulbi present
	Midsagittal facial profile* normal in appearance
	Nasal bone* normal in appearance
	Upper lip intact
Neck	Absence of masses (e.g. cystic hygroma)
Chest/heart	Chest and lungs appearing normal in shape/size
	Heart activity present
	Four-chamber view of heart in normal position (left chambers on left side)
	Aortic and pulmonary outflow tracts (relative size and their relationships) normal
	LVOT view; three-vessel view or three-vessels-and-trachea view normal
	No evidence of diaphragmatic hernia
Abdomen	Stomach in normal position on left side
	Bowel normal (not dilated or hyperechogenic)
	Gallbladder on right side*
	Both kidneys present, no pyelectasis
	Urinary bladder normal in appearance
	Cord insertion site into the fetal abdomen normal
Skeletal	No spinal defects or masses (transverse and sagittal views)
	Arms and hands present, normal joint position
	Legs and feet present, normal joint position
Placenta	Placental position and relation to cervix normal
	No masses present
Umbilical cord	Three-vessel cord*
	Cord insertion into placenta* normal
Genitalia	Normal male or female genitalia*
Cervix	Cervical-length measurement normal*

*Optional component of checklist: can be evaluated if technically feasible and according to local practice. LVOT, left ventricular outflow tract.

BÁSICA



População Geral

Identificar situações de risco

Confirmar Normalidade

Indicação de Neurossonografia

NEUROSSONOGRAFIA

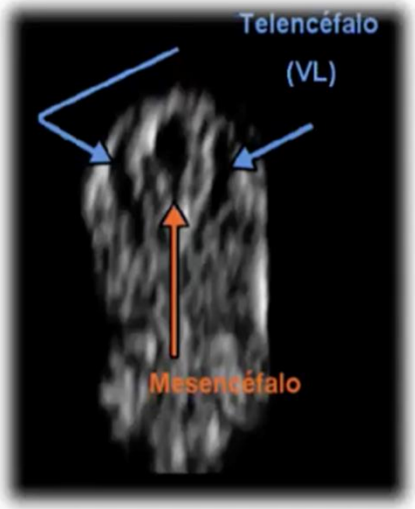
Confirmar/Excluir anomalia

Planejamento (Cariotipo;Sorologias; RNM.)

Prognóstico

Equipe Multidisciplinar

nexus



8 semanas

16 semanas

36 semanas

nexus

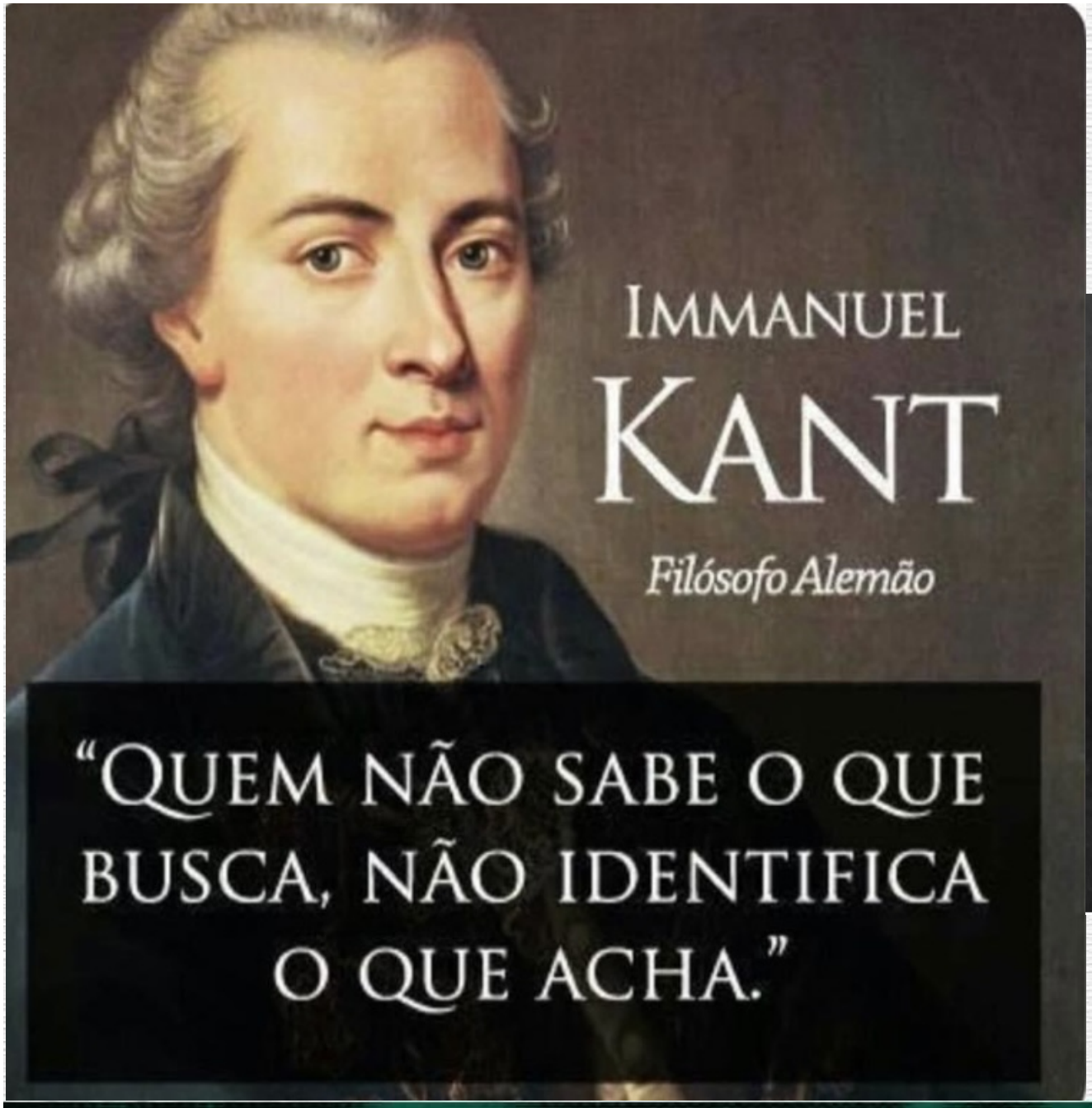
Avaliação morfológica do cérebro normal no 2º trimestre não exclui o desenvolvimento de alteração cerebral ao longo da gestação

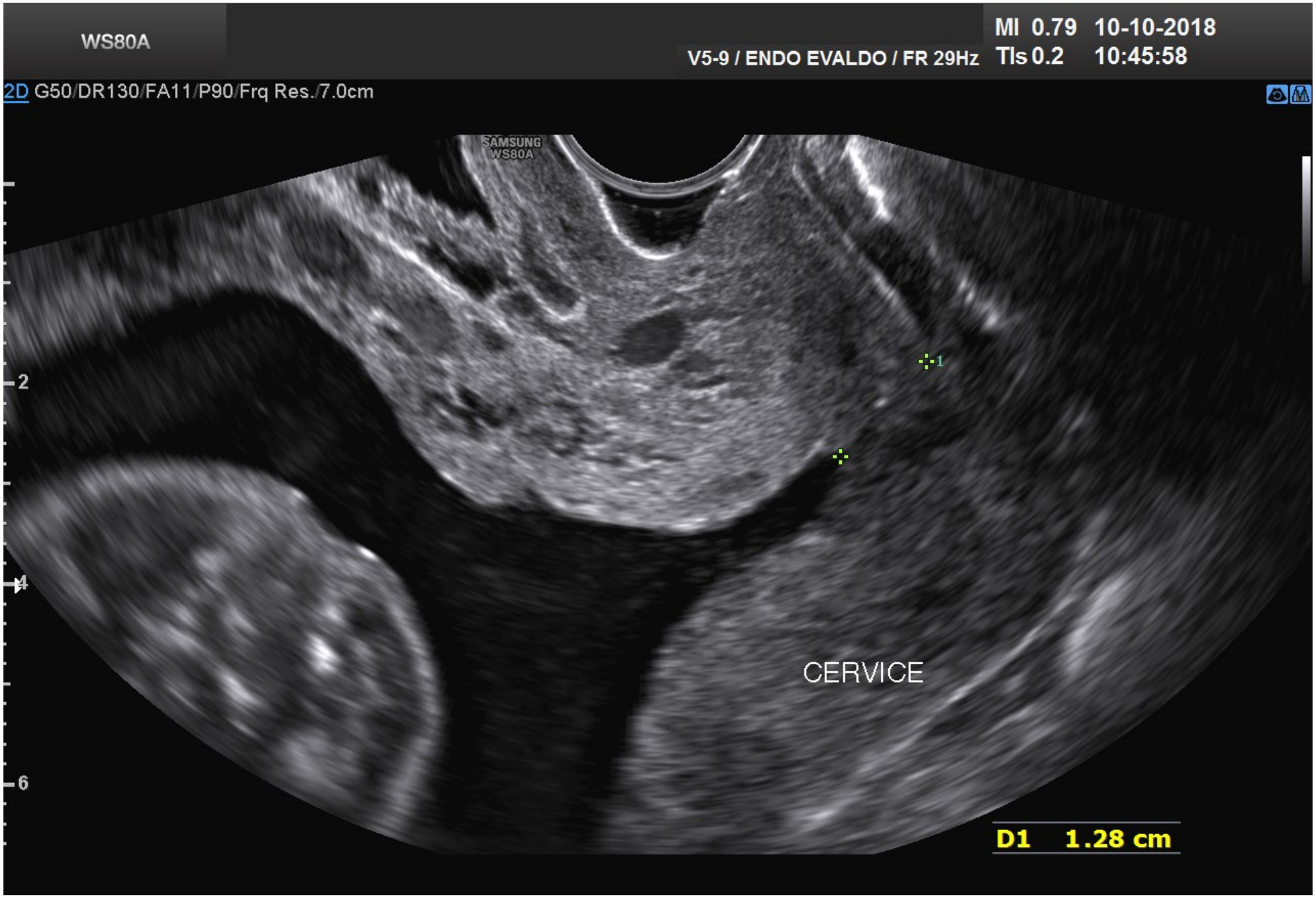
Ultrasound Obstet Gynecol 2002; 20: 51–56

A normal second-trimester ultrasound does not exclude intracranial structural pathology

G. MALINGER*, T. LERMAN-SAGIE†, N. WATEMBERG†, S. ROTMENSCH*, D. LEV‡ and M. GLEZERMAN*

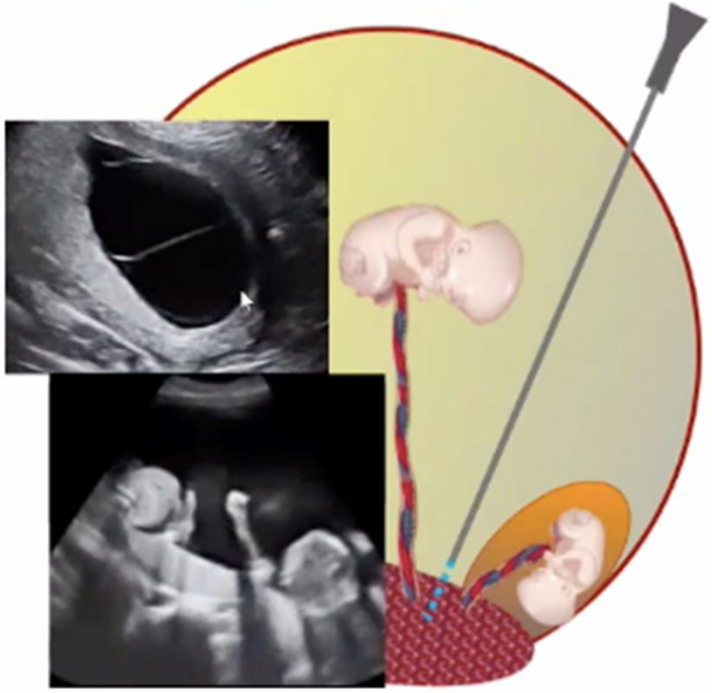
nexus


IMMANUEL
KANT
Filósofo Alemão
"QUEM NÃO SABE O QUE BUSCA, NÃO IDENTIFICA O QUE ACHA."


WS80A
V5-9 / ENDO EVALDO / FR 29Hz
MI 0.79 10-10-2018
TIs 0.2 10:45:58
2D G50/DR130/FA11/P90/Frq Res./7.0cm
SAMSUNG
WS80A
2
4
6
1
CERVICE
D1 1.28 cm

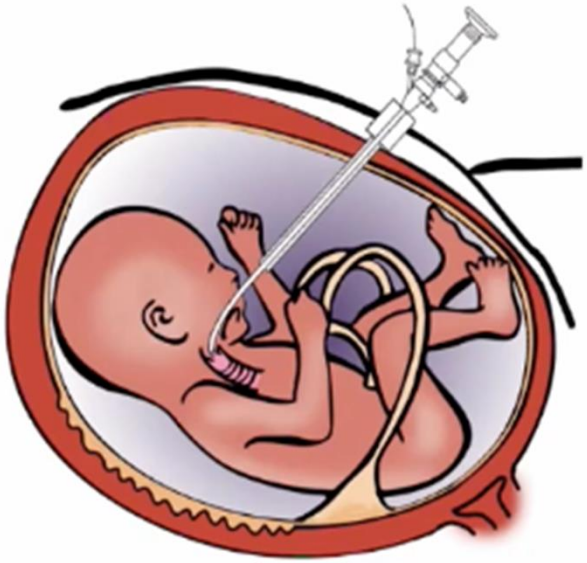
The Fetal Medicine Foundation

Endoscopic laser surgery for severe TTTS and sFGR



Ville Y, Hyett J, Hecher K, Nicolaides KH. Endoscopic laser surgery for severe TTTS. Ultrasound Obstet Gynaecol **1992,** NEJM **1995**

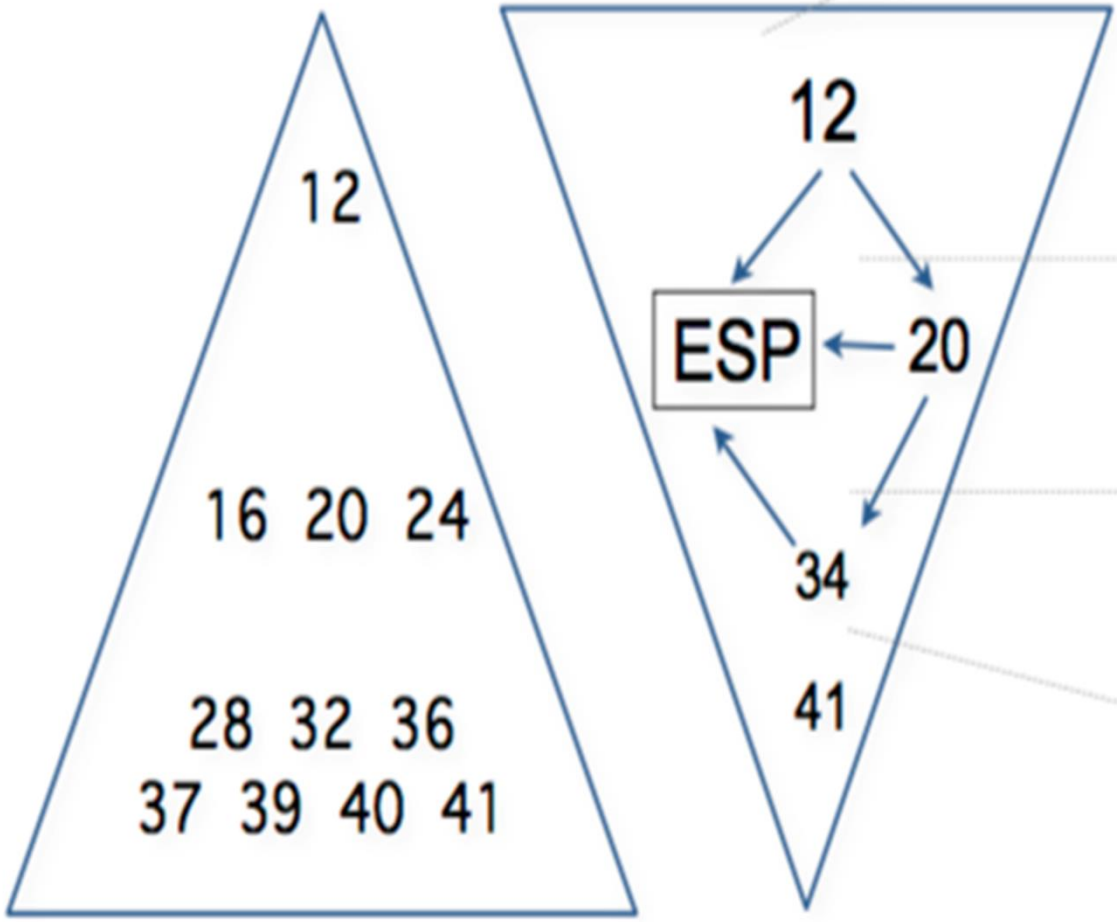
FETO for severe CDH



Deprest J, Gratacos E, Nicolaides KH. Fetoscopic tracheal occlusion **(FETO)** for severe CDH. Ultrasound Obstet Gynecol **2004**

Endoscopic repair of spina bifida

Sanz Cortes M, Lapa DA, Acacio GL, Belfort M, Carreras E, Maiz N, Peiro JL, Lim FY, Miller J, Baschat A, Sepulveda G, Davila I, Gielchinsky Y, Benifla M, Stirnemann J, Ville Y, Yamamoto M, Figueroa H, Simpson L, Nicolaides KH. International Fetoscopic Myelomeningocele Repair Consortium. Ultrasound Obstet Gynecol **2019**



- 70% malformaciones
- Anomalías crómosómicas
- Preeclampsia/CIR precoz
- Prematuridad
- Diabetes

- 85% malformaciones
- Prematuridad / Diabetes

- Preeclampsia tardía
- CIR tardío

DOI: 10.1002/pd.4423

EDITORIAL

Can prenatal screening reduce the adverse obstetric outcomes related to abnormal placentation?

Alessandro Ghidini[1]* and Eduard Gratacos[2]

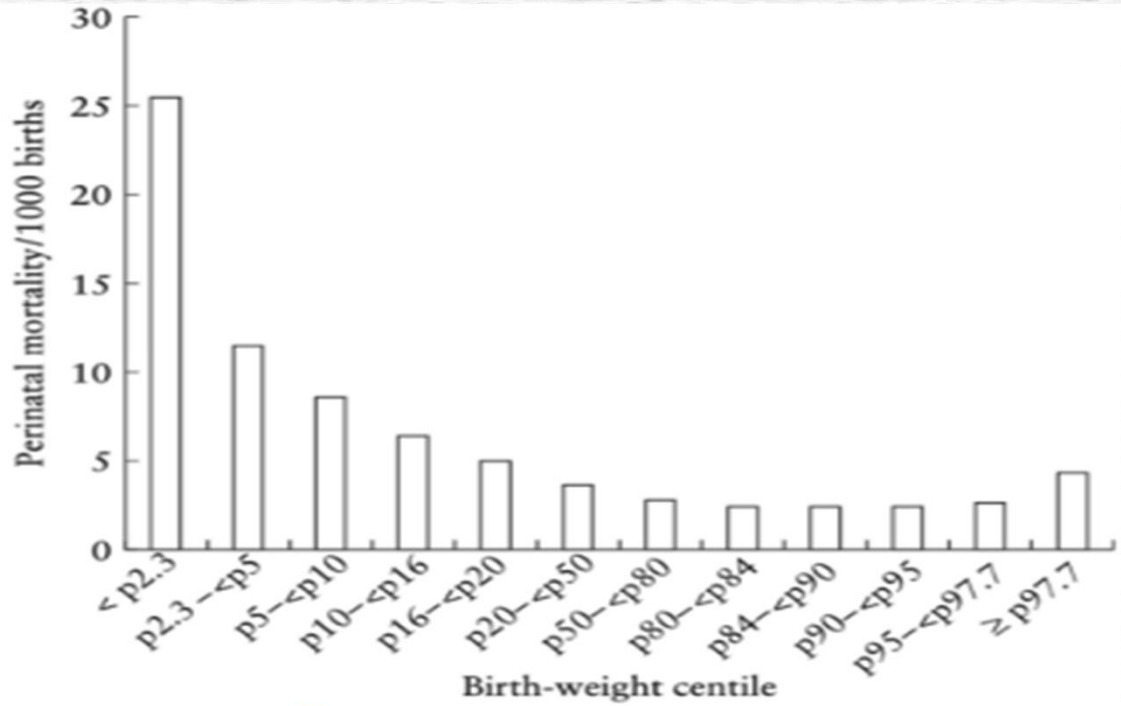
[1]Perinatal Diagnostic Center, Inova Alexandria Hospital, Alexandria, VA, USA
[2]BCNatal, Barcelona Center for Maternal-Fetal and Neonatal Medicine, Hospital Clinic and Hospital Sant Joan de Deu, IDIBAPS, CIBERER and Universitat de Barcelona, Spain
*Correspondence to: Alessandro Ghidini. E-mail: Alessandro.Ghidini@Inova.org

Insights into Fetal Death -A Patient Resource

Roger SMITH, PhD, MBBS, Lee DEDMAN, NHIL, Zakia SULTANA, PhD, David BANNEY, PhD, MBBS, Kaushik MAITI, PhD

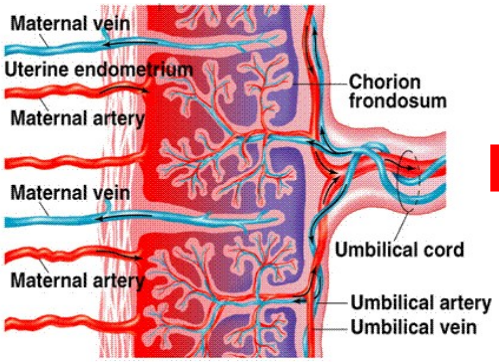
Clinical Opinion: The diagnosis and management of suspected fetal growth restriction: an evidence-based approach

Christoph C. Lees, MD, FRCOG; Roberto Romero, MD; Tamara Stampalija, PhD; Andrea Dall'Asta, PhD; Greggory A. DeVore, MD; Federico Prefumo, MD; Tiziana Frusca, MD; Gerard H. A. Visser, PhD; John C. Hobbins, MD; Ahmet A. Baschat, MD; Caterina M. Bilardo, PhD; Henry L. Galan, MD; Stuart Campbell, MD; Dev Maulik, PhD; Francesc Figueras, PhD; Wesley Lee, MD; Julia Unterscheider, PhD; Herbert Valensise, PhD; Fabricio Da Silva Costa, PhD; Laurent J. Salomon, MD; Liona C. Poon, MD; Enrico Ferrazzi, MD; Giancarlo Mari, MD; Giuseppe Rizzo, MD; John C. Kingdom, MD; Torvid Kiserud, PhD; Kurt Hecher, MD



Adapted from Vasak et al.[10]

FGR: symptom or disease?



PATHOLOGY
Placental dysfunction

SYMPTOM
Slow fetal growth (Food)
Death and disability (O_2)

Stillbirth and developmental handicap related to hypoxaemia not malnutrition

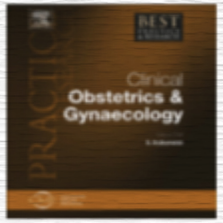
Cortesia:Basky Thilaghnathan

IDENTIFICAÇÃO DO SGA
DIFERENCIAÇÃO DO SGA x FGR
MOMENTO DO PARTO - PROTOCOLO

Contents lists available at ScienceDirect

Best Practice & Research Clinical Obstetrics and Gynaecology

journal homepage: www.elsevier.com/locate/bpobgyn



5

An integrated approach to fetal growth restriction

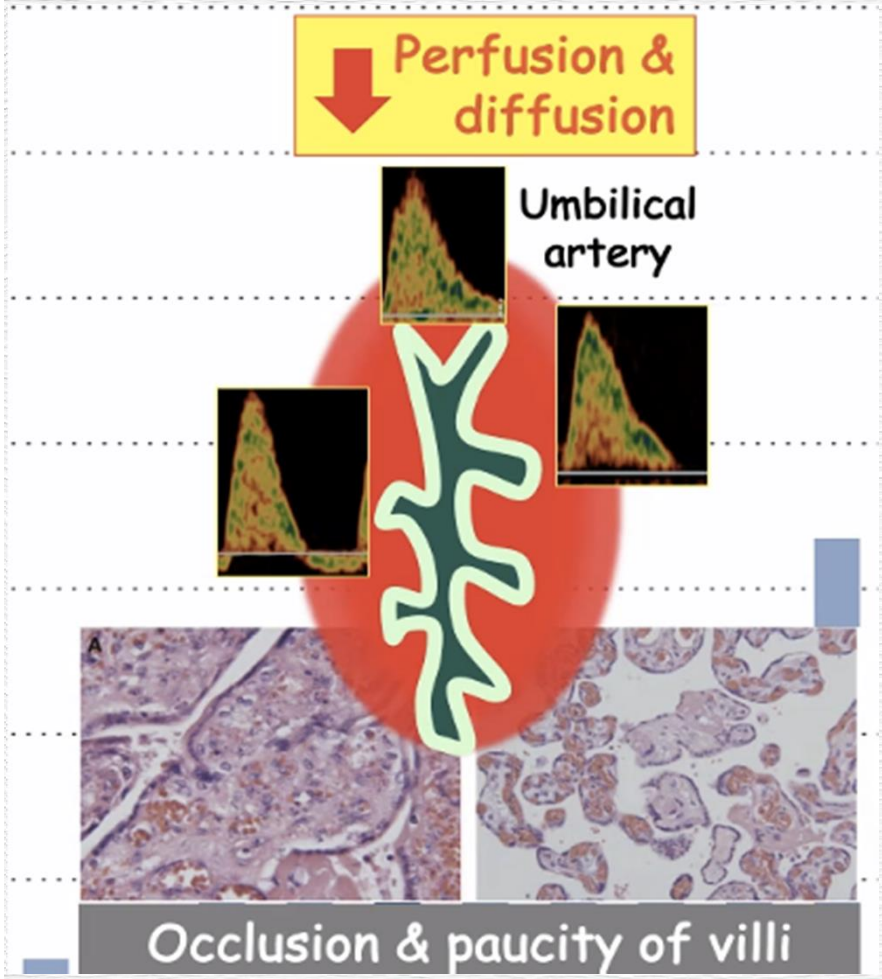
Francesc Figueras, MD, PhD [a, b], Eduard Gratacos, MD, PhD [a, b, *]

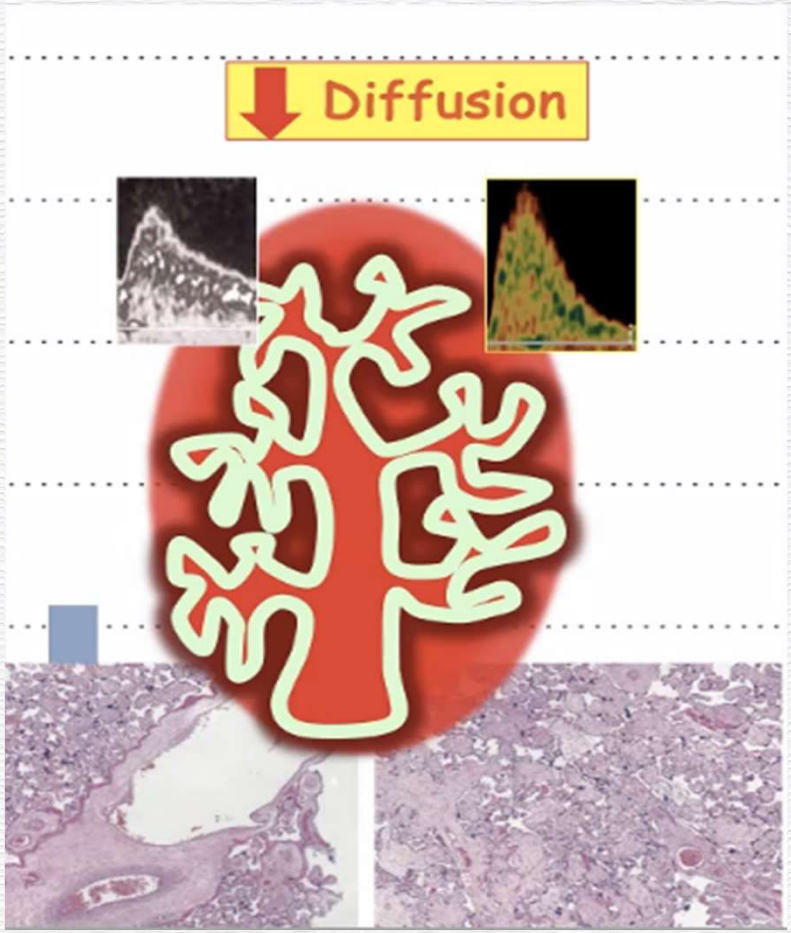
[a] Barcelona Center for Maternal-Fetal and Neonatal Medicine (Hospital Clínic and Hospital Sant Joan de Deu), IDIBAPS, University of Barcelona, Spain
[b] Centre for Biomedical Research on Rare Diseases (CIBER-ER), Spain

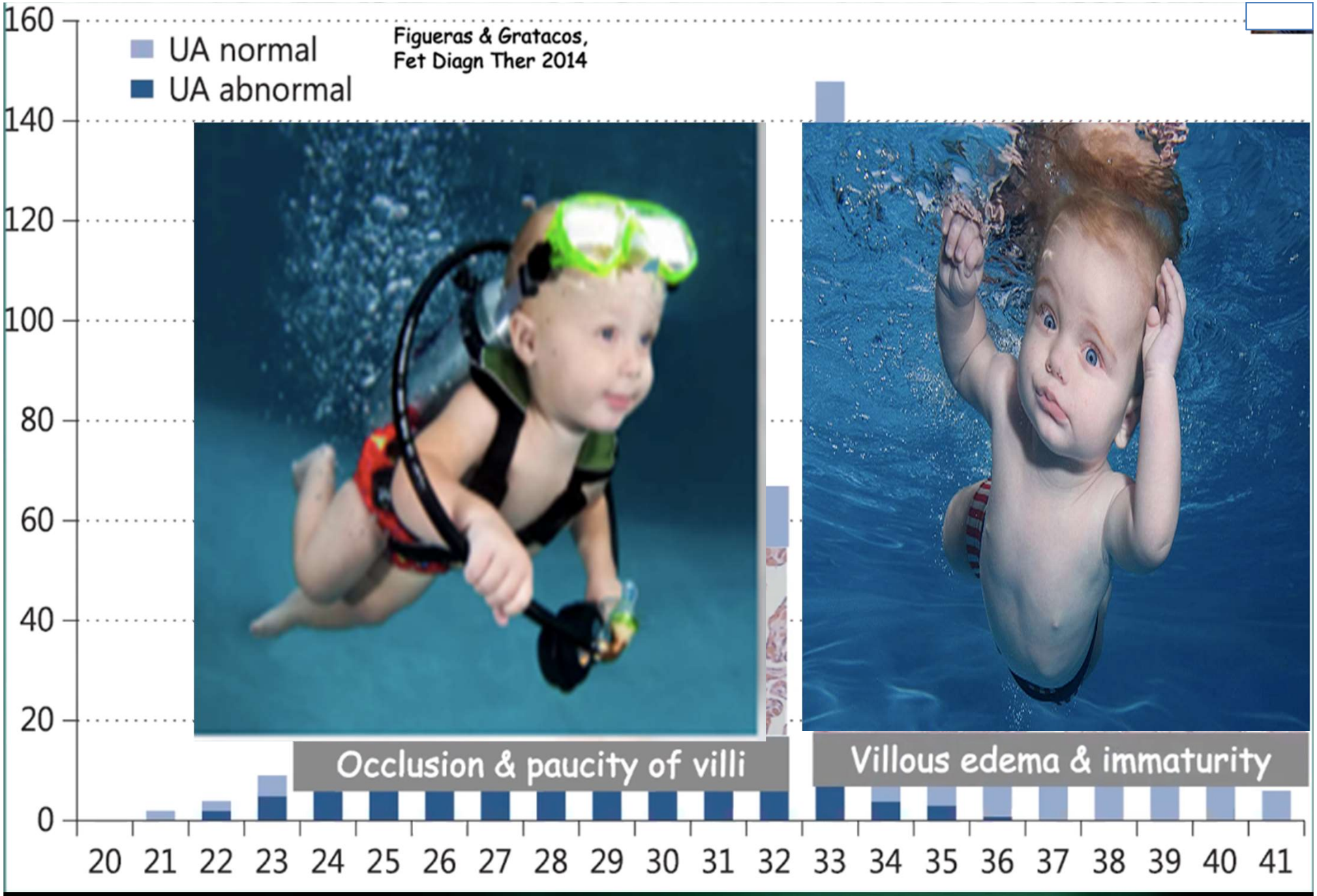
DISFUNÇÃO PLACENTÁRIA

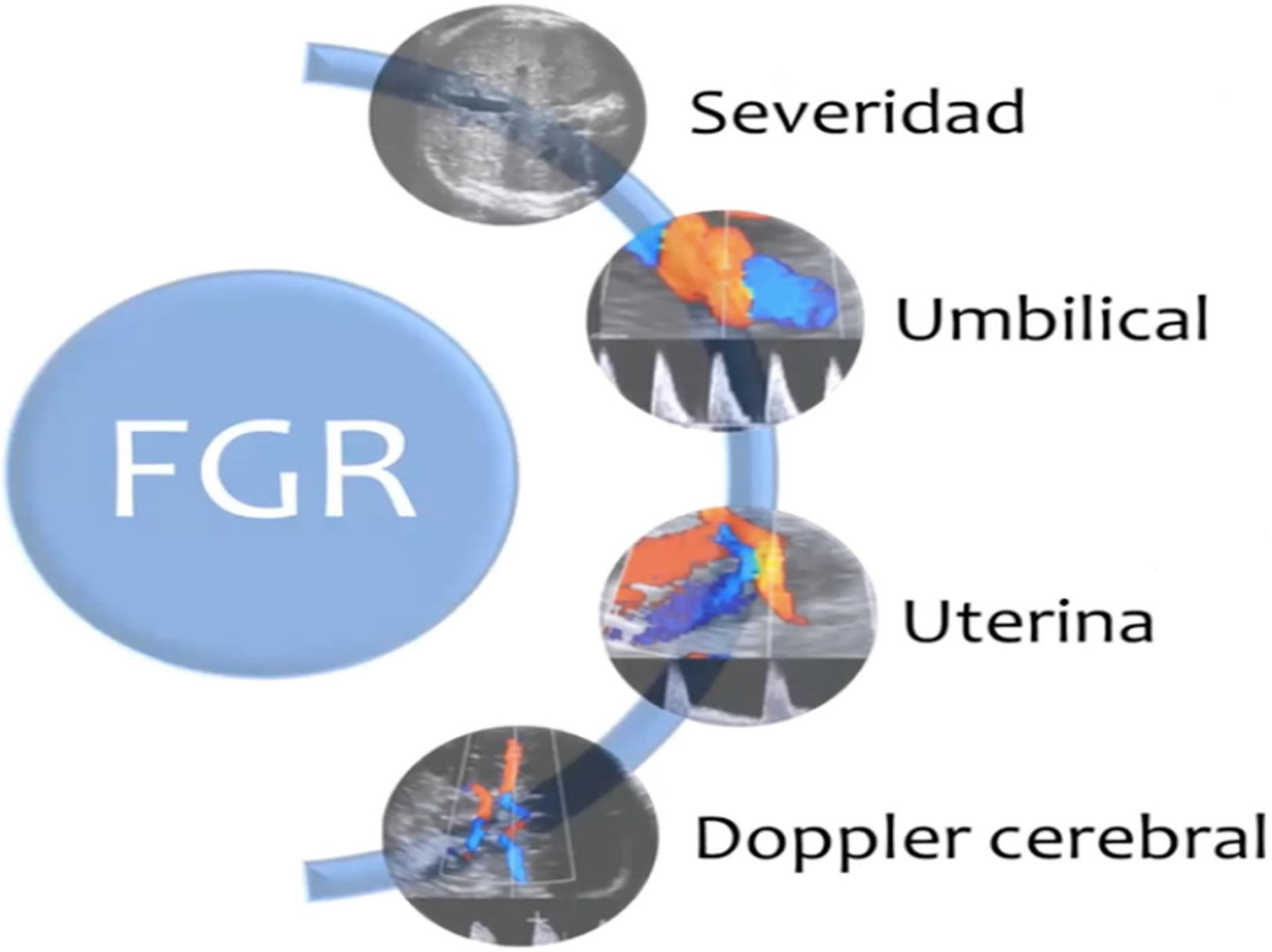
< 32 SEM

> 32 SEM





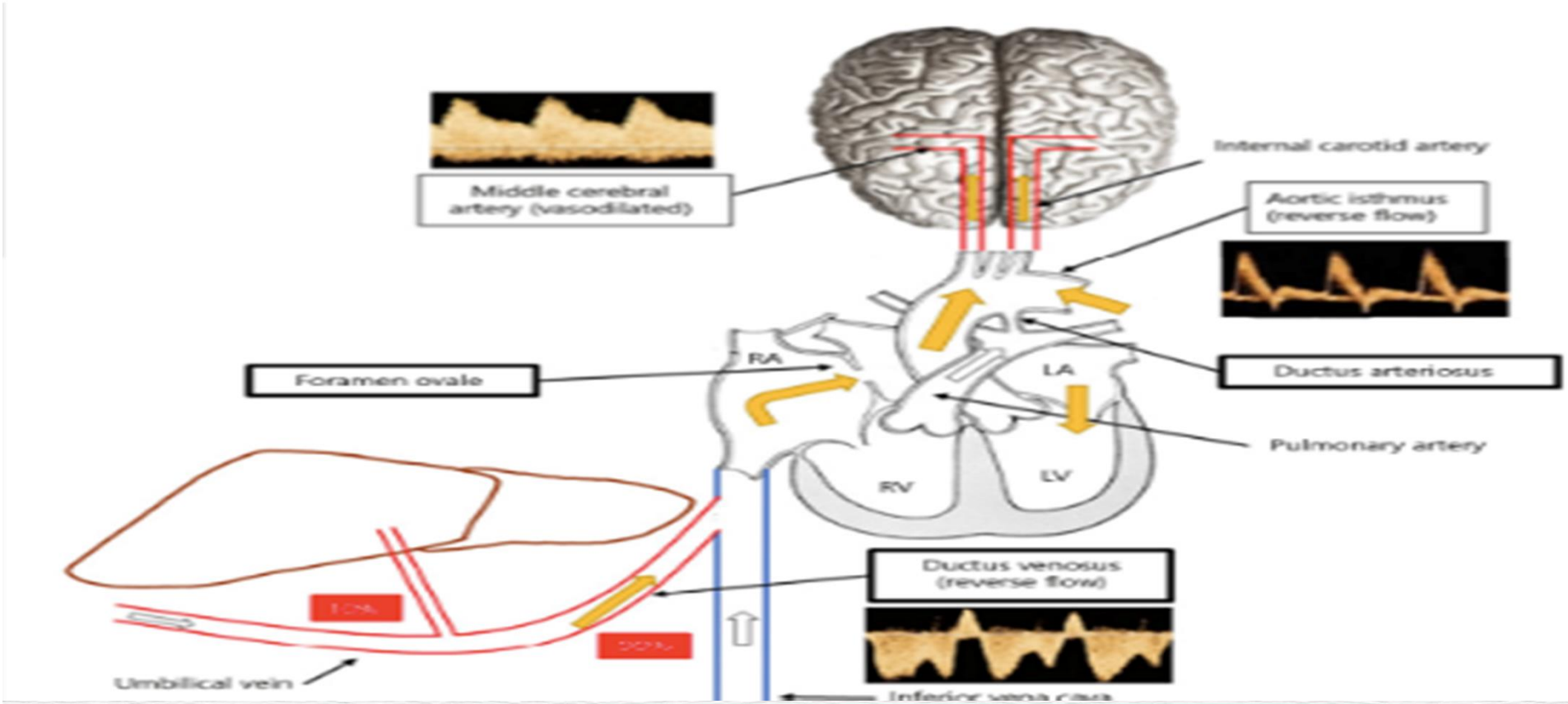

UA normal
UA abnormal
Figueras & Gratacos,
Fet Diagn Ther 2014
160
140
120
100
80
60
40
20
0
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
Occlusion & paucity of villi
Villous edema & immaturity


FGR
Severidad
Umbilical
Uterina
Doppler cerebral

Mechanisms of Fetal Adaptation to Chronic Hypoxia following Placental Insufficiency: A Review

Ruben Ramirez Zegarra[a, b] Andrea Dall'Asta[a] Tullio Ghi[a]

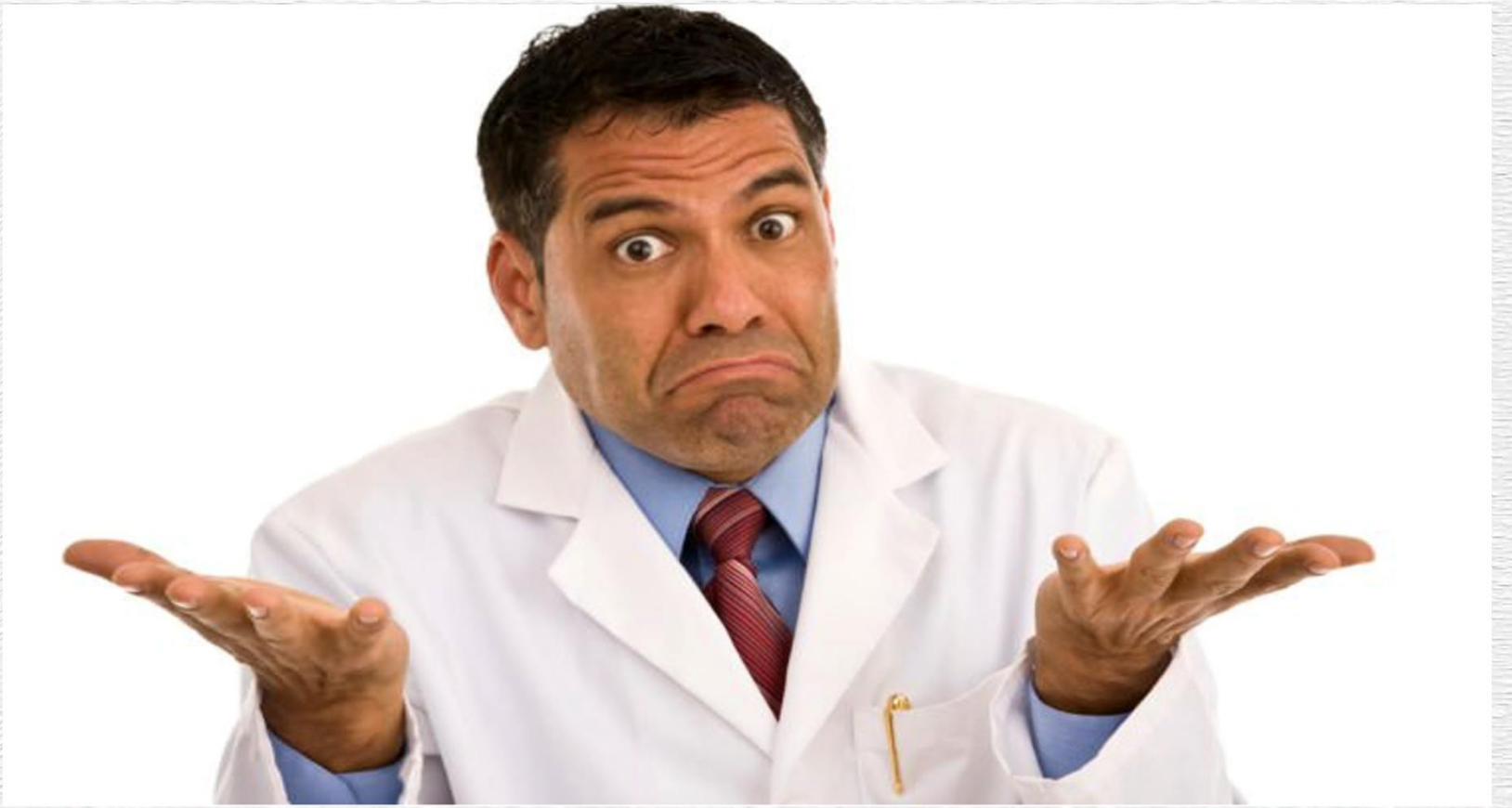
[a]Obstetrics and Gynaecology Unit, Department of Medicine and Surgery, University of Parma, Parma, Italy; [b]Department of Obstetrics and Gynaecology, University Hospital rechts der Isar, Technical University of Munich, Munich, Germany



PROTOCOLOS -CONDUTA

« Opinion is something between knowledge and ignorance»

Plato



Considering evidence in the management of fetal growth restriction

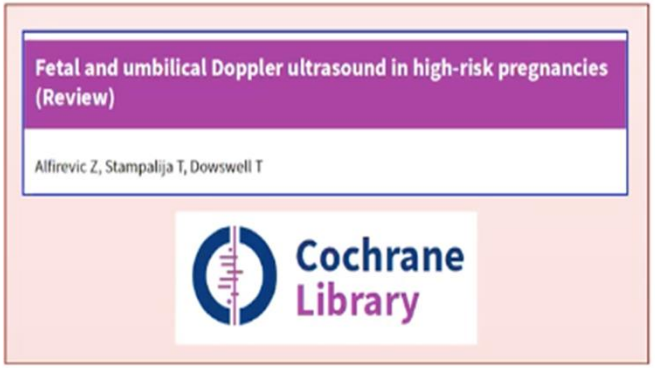
A. A. BASCHAT

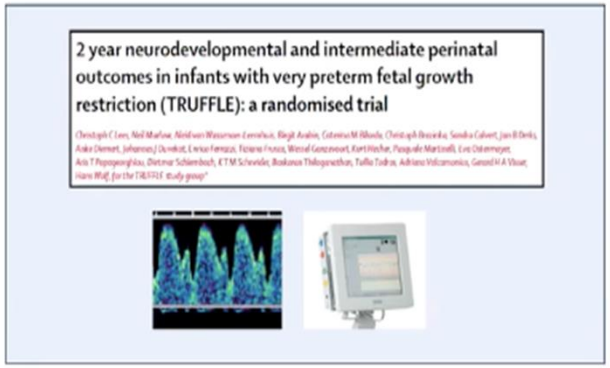
Johns Hopkins Center for Fetal Therapy, Department of Gynecology & Obstetrics, Johns Hopkins University School of Medicine, Baltimore, MD, USA
(e-mail: abascha1@jhmi.edu)

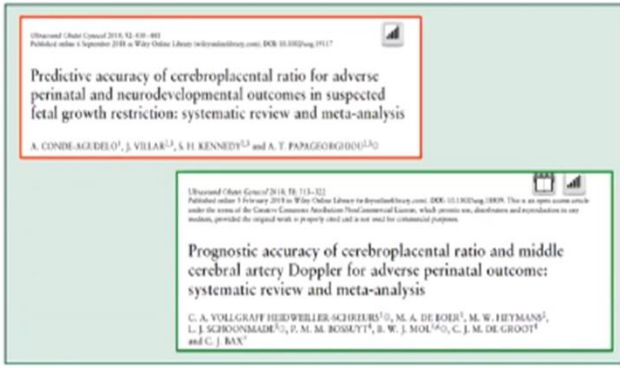
Protocolos não unificados

Riscos existentes e futuros para o feto e pós –parto

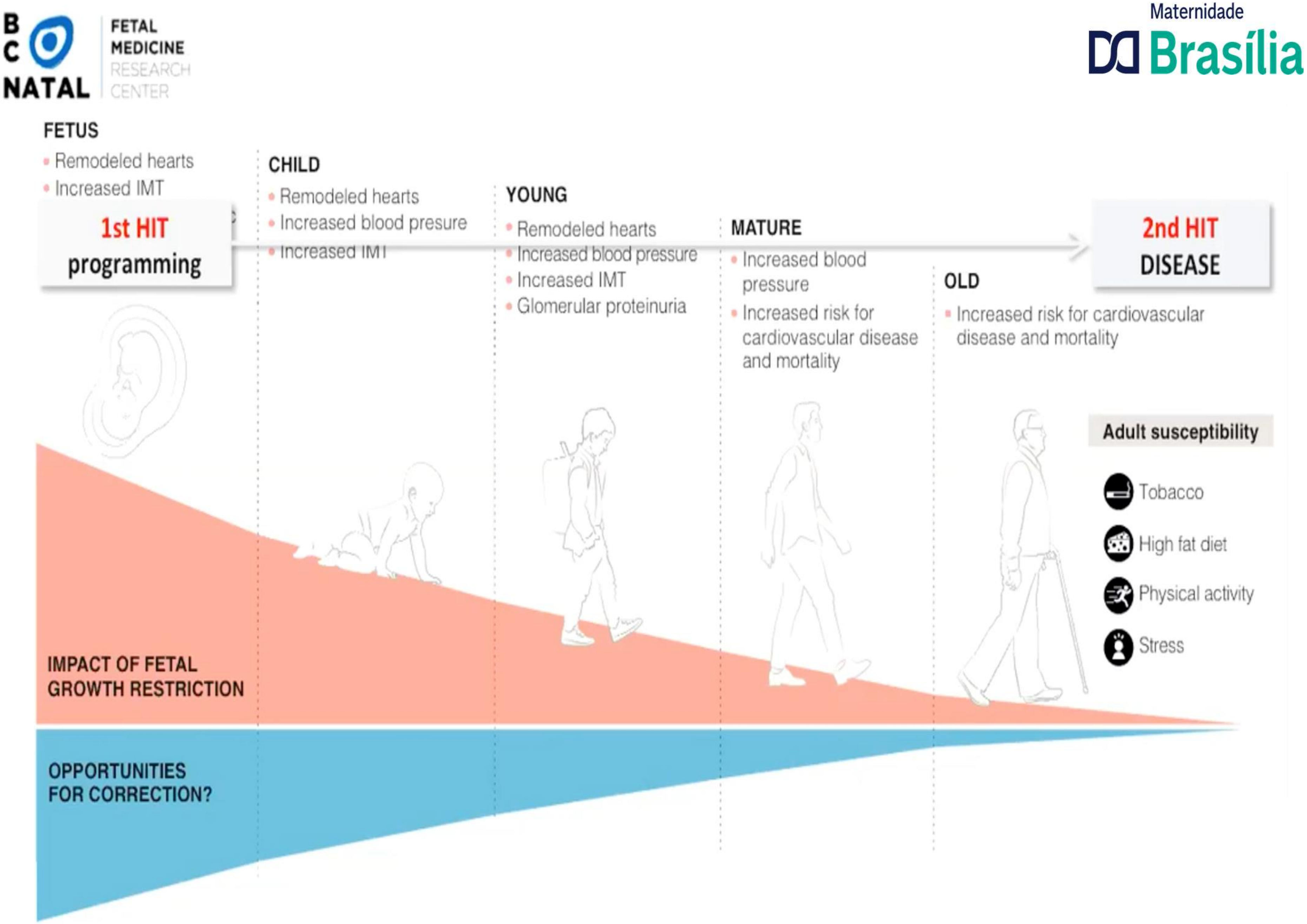
Vigilância fetal deve refletir com precisão o estado fetal atual ,bem como prevenção do óbito fetal





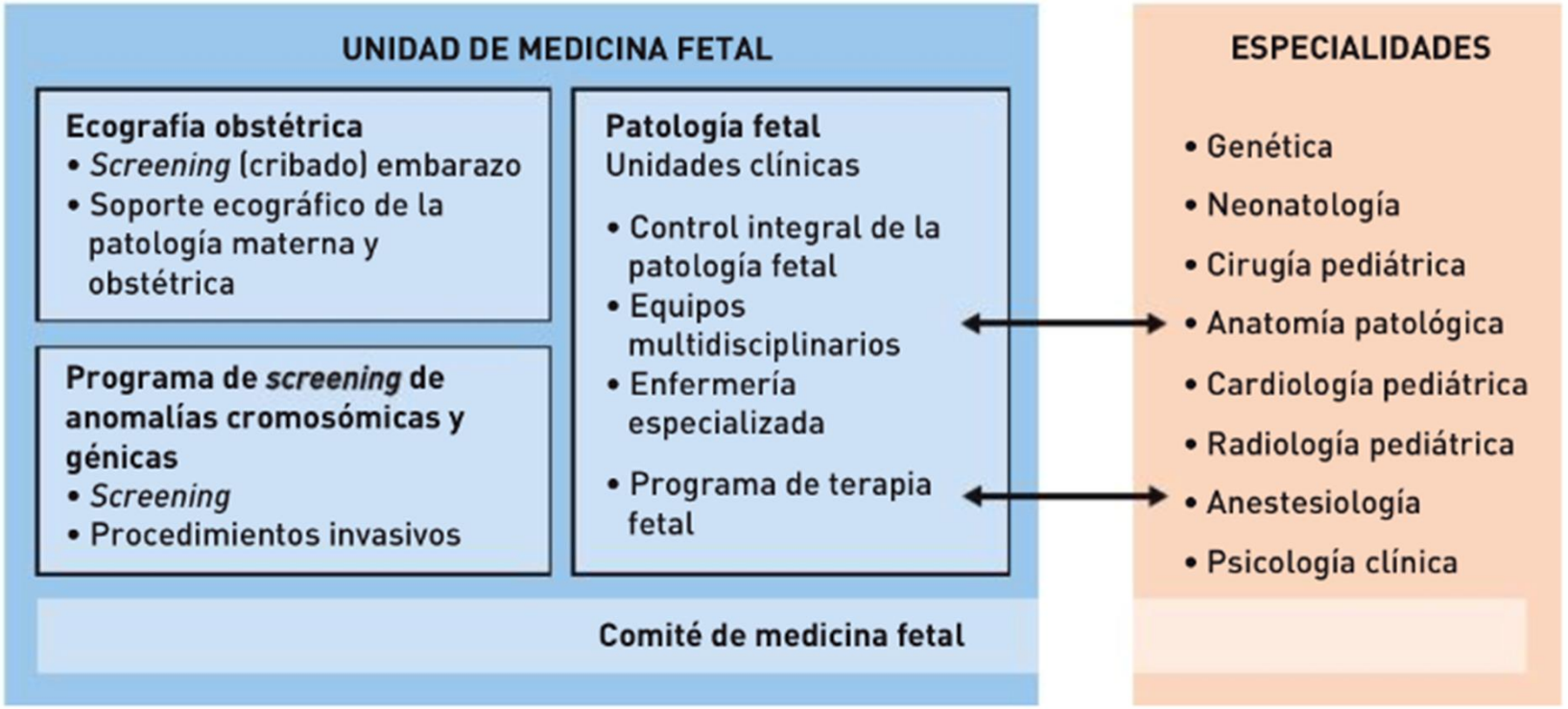


Surveillance			Delivery timing		
	SMFM	ISUOG		SMFM	ISUOG
Umbilical artery	Yes	Yes	UA-REDF	30-32 wk	≥32^{+0} (permitted >30^{+0}) wk
			UA-AEDF	33-34 wk	≥34^{+0} (permitted >32^{+0}) wk
			UA-PI>95th pc	37 wk	≥36^{+0}-37^{+6} wk
CTG	Yes	Yes	CTG	Decelerations	Decelerations
Ductus venosus	No	Yes	DV-a wave	No	≥26^{+0}-31^{+6} wk: absent or reverse
STV-cCTG	No	Yes	STV-cCTG	No	≥26^{+0}-28^{+6} wk: <2.6 ms ≥29^{+0}-31^{+6} wk: <3.0 ms ≥32^{+0}-33^{+6} wk: <3.5 ms ≥34^{+0} wk: <4.5 ms
MCA	No	Yes	MCA	No	38^{+0}-39^{+0} wk
			EFW<3rd pc	37 wk	36^{+0}-37^{+6} wk
			EFW 3-10 pc	38-39 wk	≥38^{+0}-39^{+6} wk



F Crispi, J Miranda & E Gratacos AJOG 2018

TAKE HOME MESSAGE



Cratacós, E., 2018.

TAKE HOME MESSAGE

Cratacós, E., 2018.

Obrigado !

evaldotrajano@gmail.com