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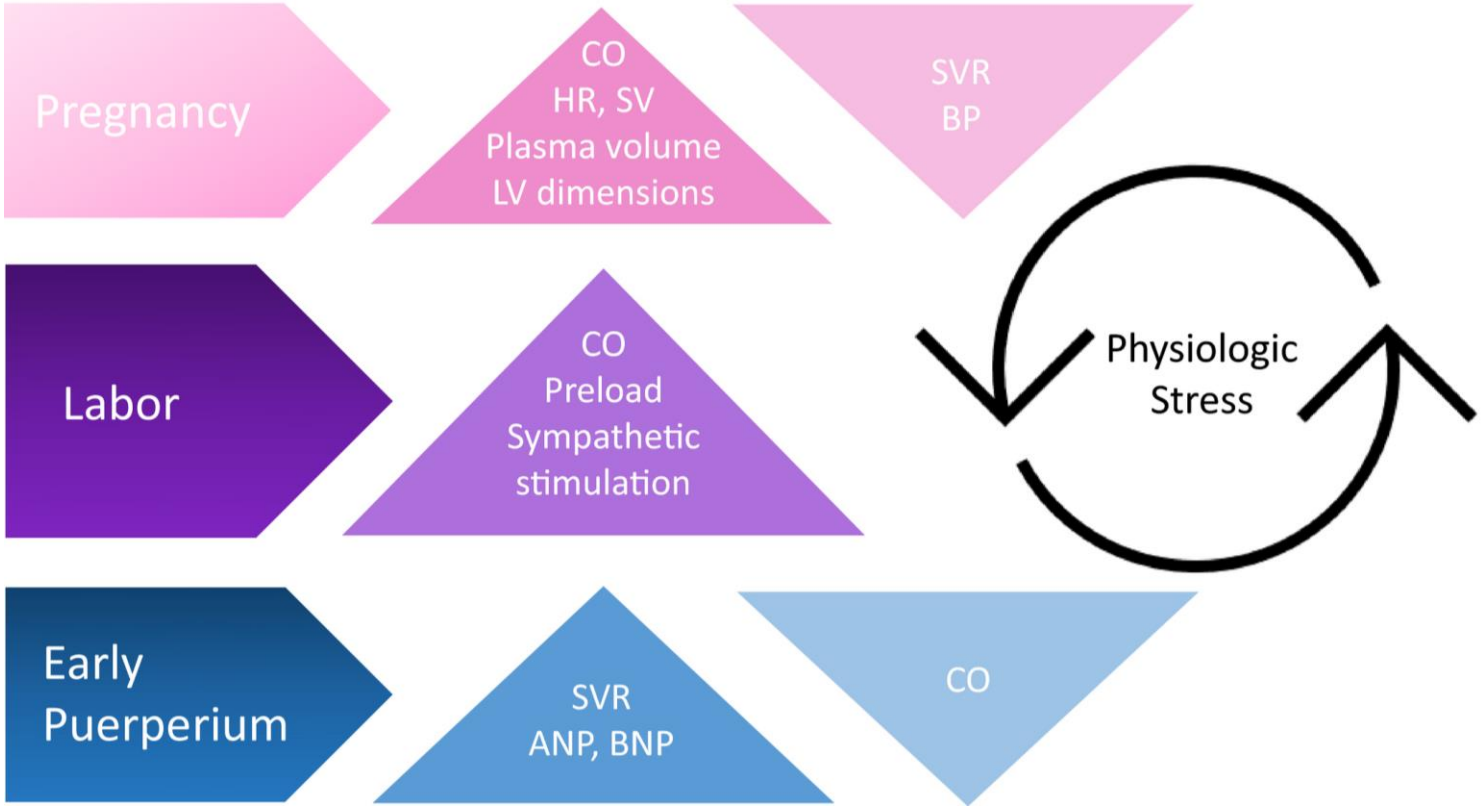
# VI Corso GUCH

# Stenosi aortica severa in gravidanza: un caso clinico

Dott.ssa Susanna Breviario
Scuola di Specializzazione in Malattie dell'apparato Cardiovascolare

Cardiovascular and Thoracic Department, Città della Salute e della Scienza Hospital, Turin
Department of Medical Sciences, University of Turin

# FISIOPATOLOGIA 1




↑ 40% volume circolante

↑massa ventricolare

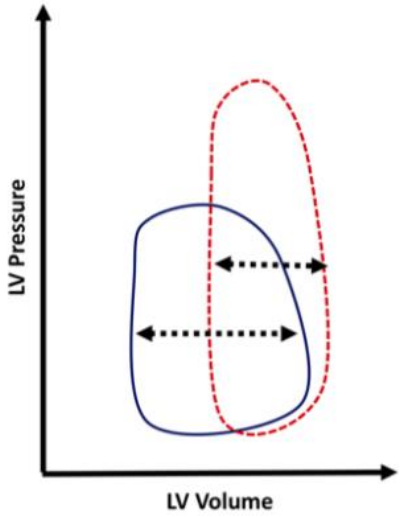
↑30-50% CO

↑ 10-20 bpm FC

↓ SVR e PVR

# FISIOPATOLOGIA 2

---Normal
---Severe Aortic Stenosis
<-->LV Stroke Volume

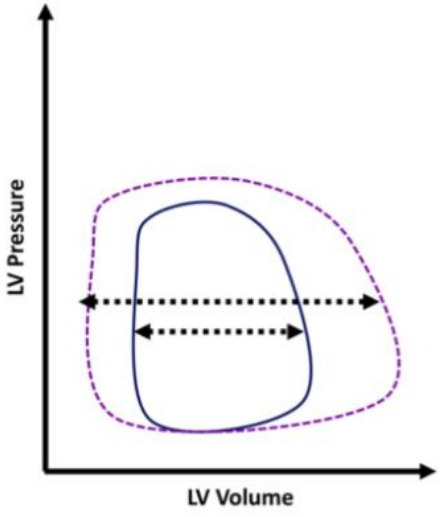



Fixed obstruction of AS leads to ⬆ Afterload

⬆LVEDP

⬇Stroke Volume

---Normal
---Normal Pregnancy
<-->LV Stoke Volume

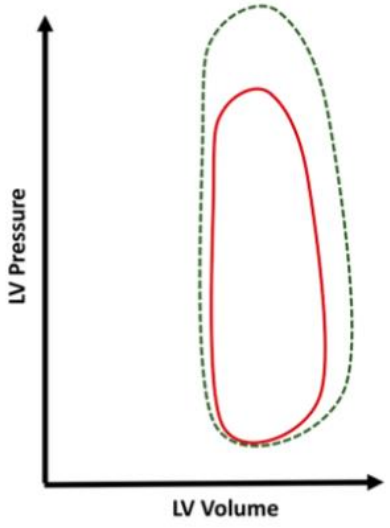



⬆ Preload (Plasma Volume)

⬆ Cardiac Output

⬇ SVR = ⬊ Afterload

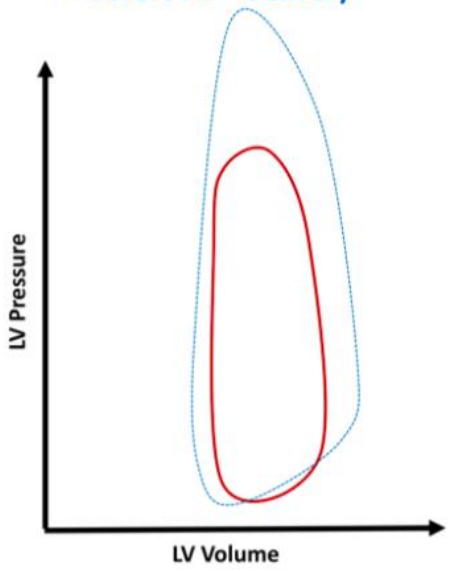
---Severe Aortic Stenosis
---Severe AS + Pregnancy




⬆ Preload but compensatory rise in LVEDV limited by ⬇ LV Compliance (LVH)

AS is fixed obstruction so ⬇ SVR = minimal effect on overall Afterload

---Severe Aortic Stenosis
---Severe AS + Delivery




⬆ Preload further from relief of IVC compression + "Auto-Transfusion" from Uterine Contraction

⬆⬆ LVEDP = high risk of HF

# CASO CLINICO

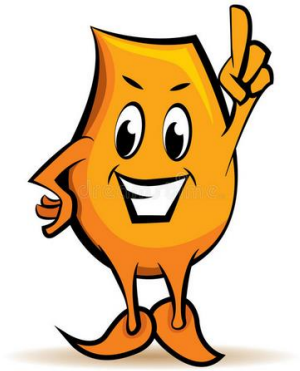
A.A. V
Donna, 28 anni, BMI 24
P0000

Stenosi aortica severa asintomatica in bicuspidia seguita in Argentina

Trasferita in Italia nel 2020, non controlli a causa della pandemia

Maggio 2022, **21 WG**

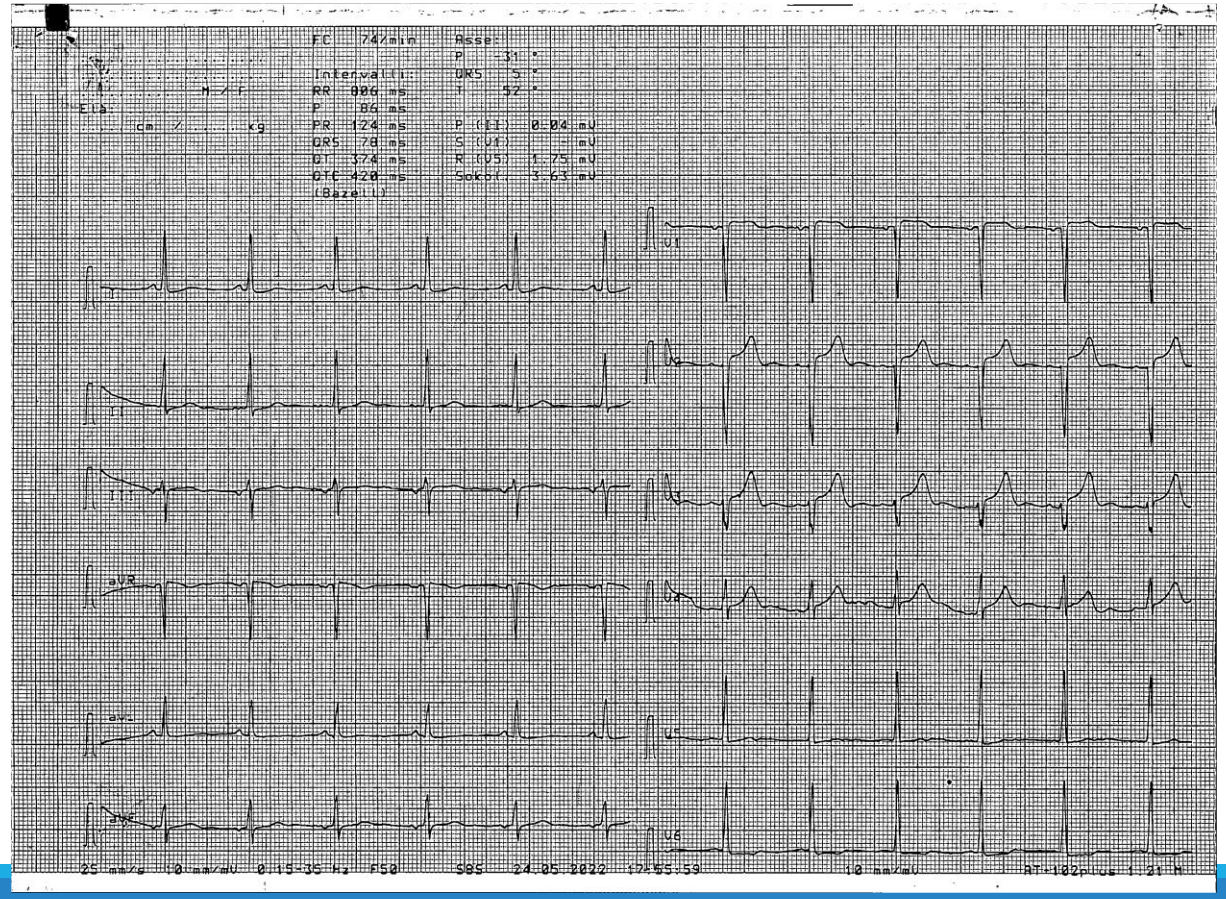
# VALUTAZIONE IN AMBULATORIO MULTIDISCIPLINARE CARDIOPATIE IN GRAVIDANZA



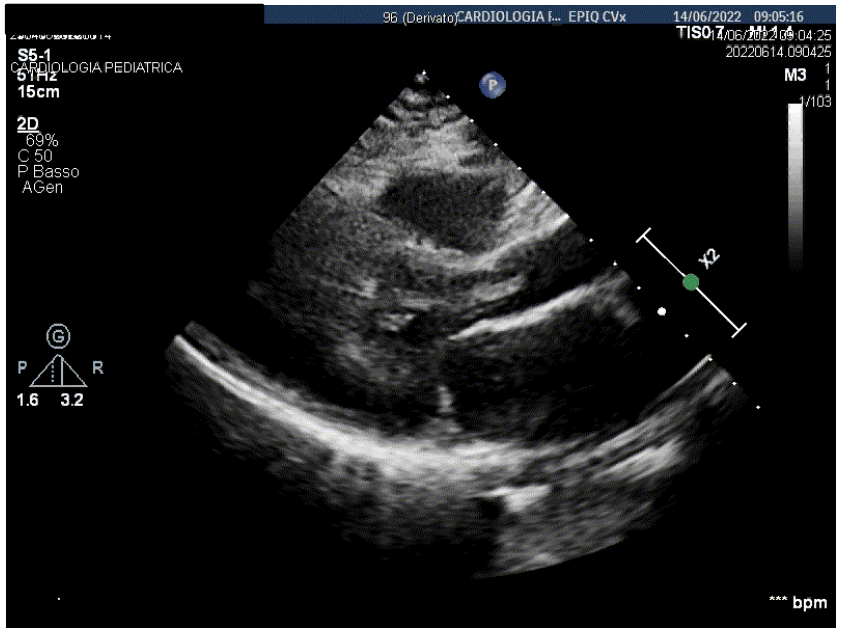
Inviata c/o Ospedale Regina Margherita a 21 settimane di gravidanza per valutare ITG

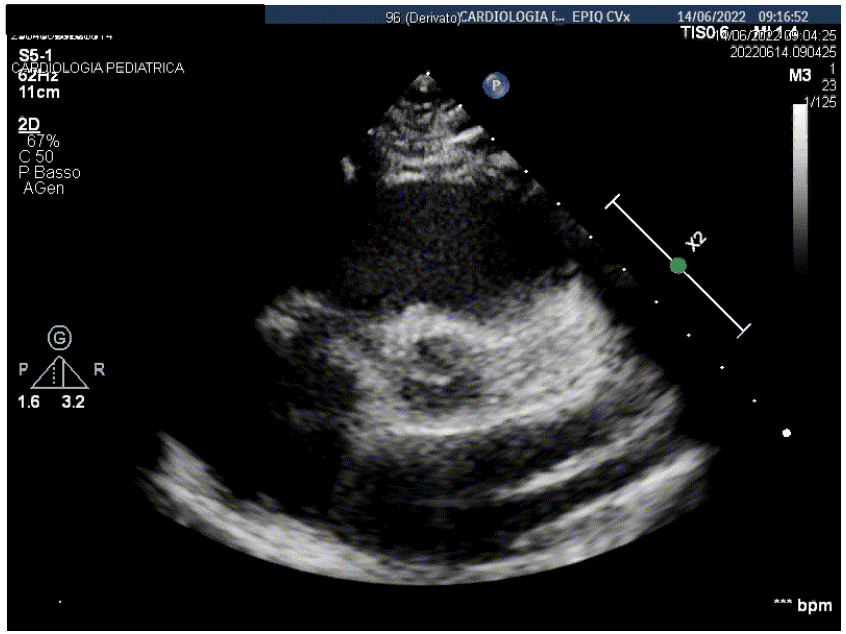
# CLINICA ED ECG

Clinicamente asintomatica ed in buon compenso emodinamico (NYHA I)



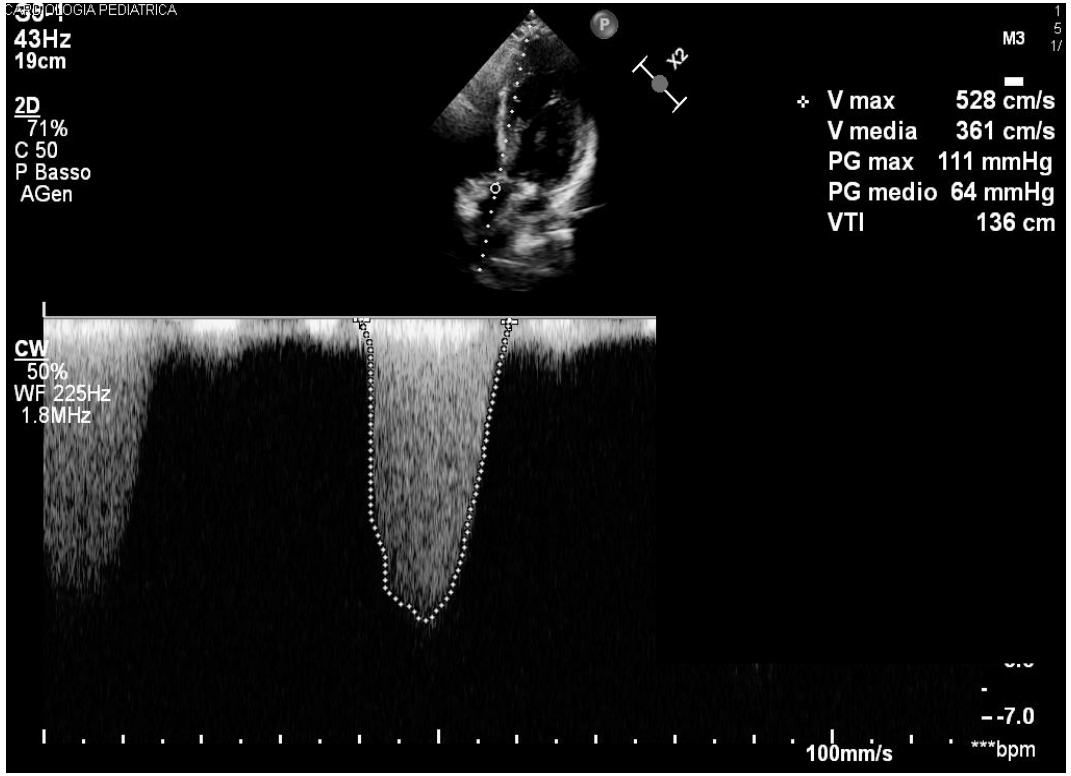
# ECOCARDIOGRAMMA TT 1

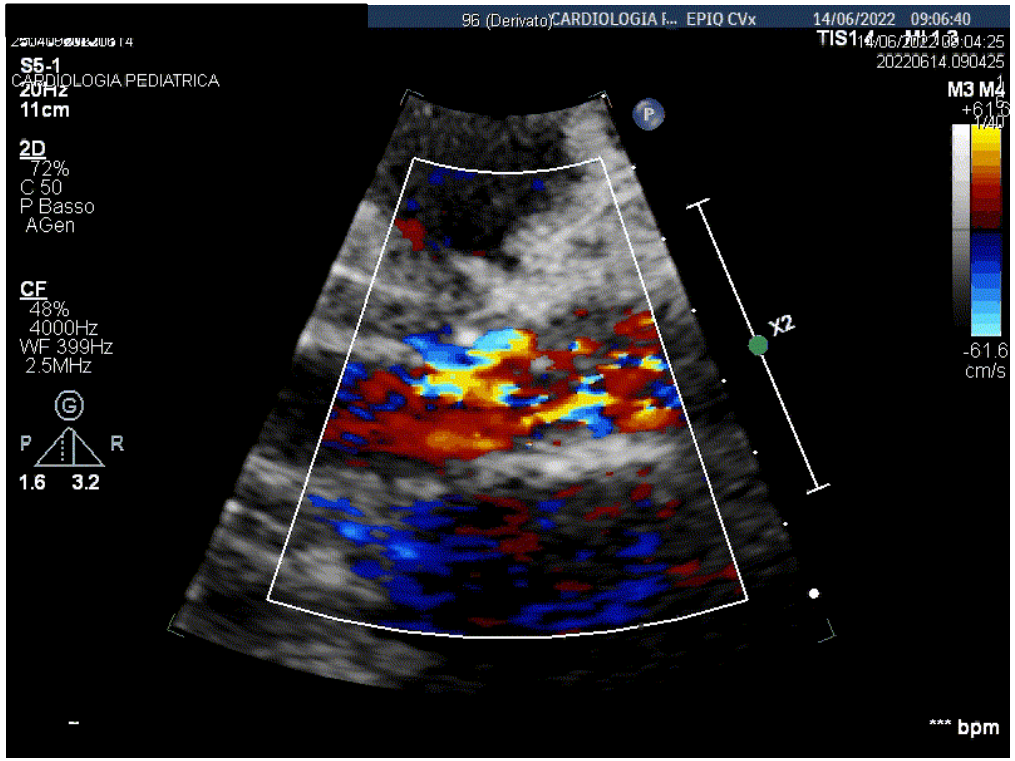



DTD 41 mm, SIV/PP 15/15 mm
FE 65%
Aorta bicuspide?
Grad max/medio 111/64 mmHg
V max 5.28 m/s
AVA VTI 0.5 cmq
IAo 2-3+

# ECOCARDIOGRAMMA TT 2



# REVISIONE LETTERATURA 1

## Risk of Pregnancy in Moderate and Severe Aortic Stenosis

From the Multinational ROPAC Registry

- 2996 gravidanze (2008-2014)
- 96 con SAo almeno moderata, 34 con SAo severa
- Scompenso cardiaco: 6.7% in asintomatiche, 26.3% in sintomatiche.
- 1 caso di valvuloplastica percutanea
- 0 decessi
- Outcome fetale: SGA  e APGAR basso nelle AS severe

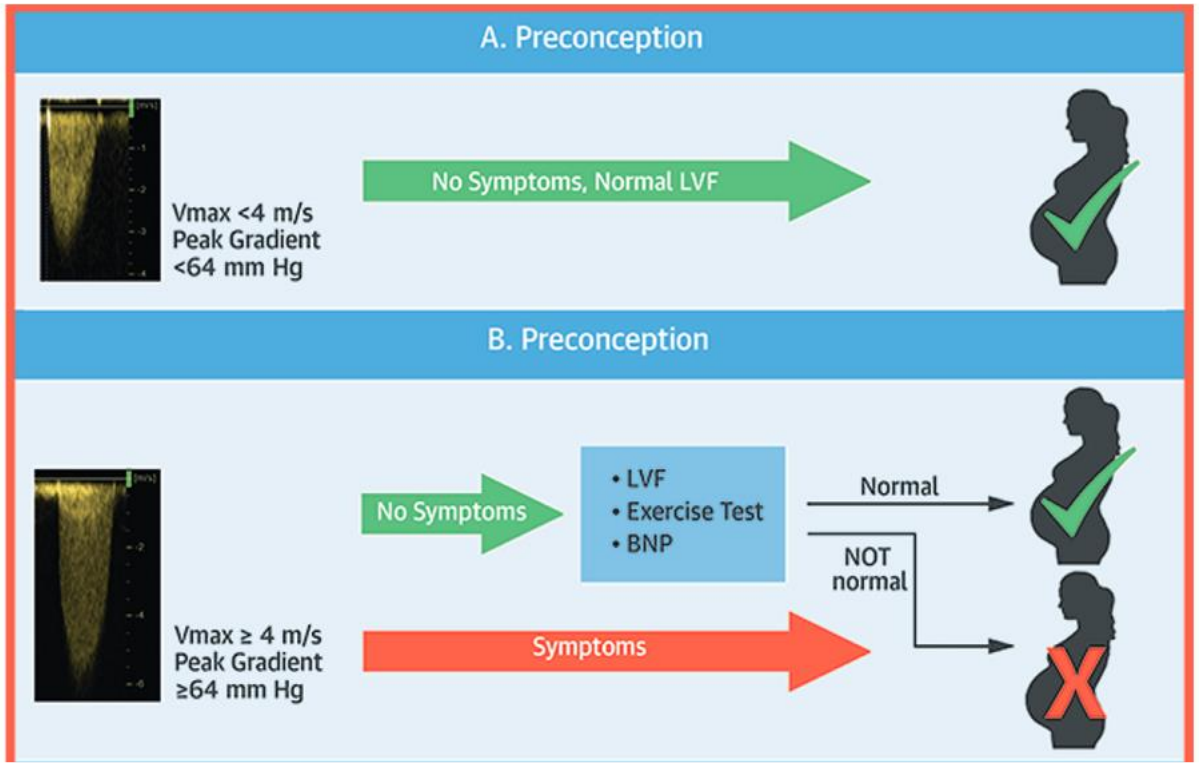
## Pregnancy outcomes in women with significant valve disease: a systematic review and meta-analysis

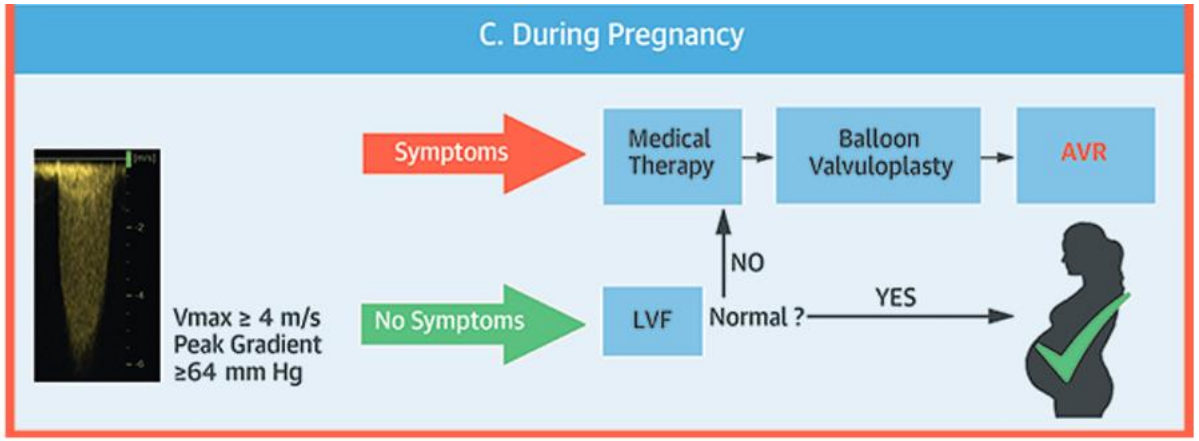
Robin Alexandra Ducas [1,2] David A Javier,[2] Rohan D'Souza [3] Candice K Silversides,[2,4] Wendy Tsang [2]

- 12  studi (1985 - Gennaio 2019)
- 646 gravidanze
- Mortalità per stenosi aortica severa 2%
- Edema polmonare in SAo severa 9%
- Aritmie in SAo severa 4%
- Neonati pretermine in gravide con SAo severa 14%

Risk of Pregnancy in Moderate and Severe Aortic Stenosis from the Multinational ROPAC Registry, S. Orwat, H. Baumgartner et al, JACC 2016
Pregnancy outcomes in women with significant valve disease: a systematic review and meta-analysis, R.A. Ducas, W. Tsang et al, Heart 2020

# REVISIONE LETTERATURA 2




Risk of Pregnancy in Moderate and Severe Aortic Stenosis from the Multinational ROPAC Registry, S. Orwat, H. Baumgartner et al, JACC 2016

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21 W

Non i[illegible]one a ITG

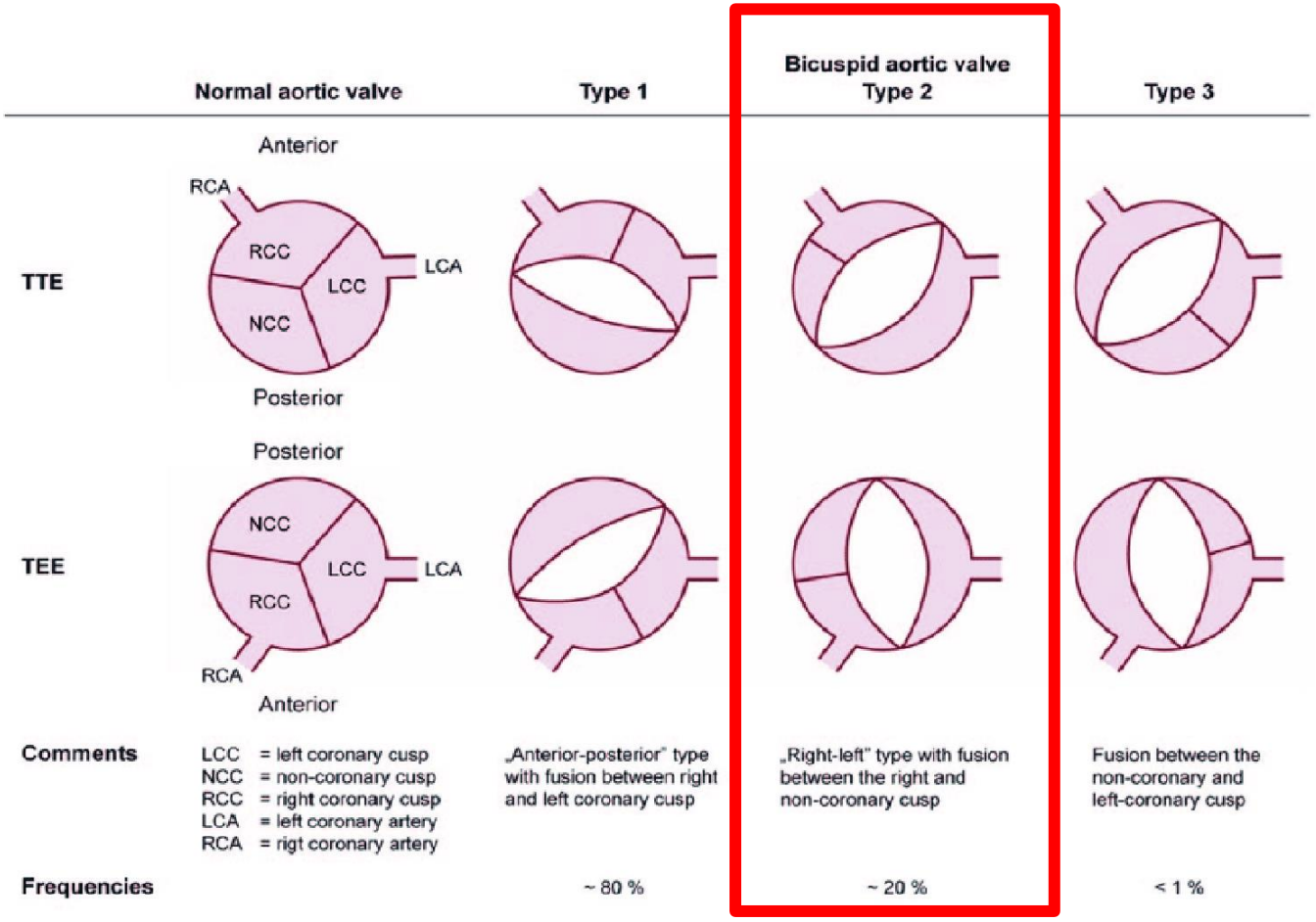
# ECOCARDIOGRAMMA TE

Anello valvolare aortico 16-17 mm

Aorta bicuspide: parziale fusione della cuspide non coronarica e della cuspide destra

Stenosi aortica severa (area anatomica 0.5 cmq)

Insufficienza aortica associate lieve 2+ a partenza centrale e diretta tra la cuspide sinistra e la destra



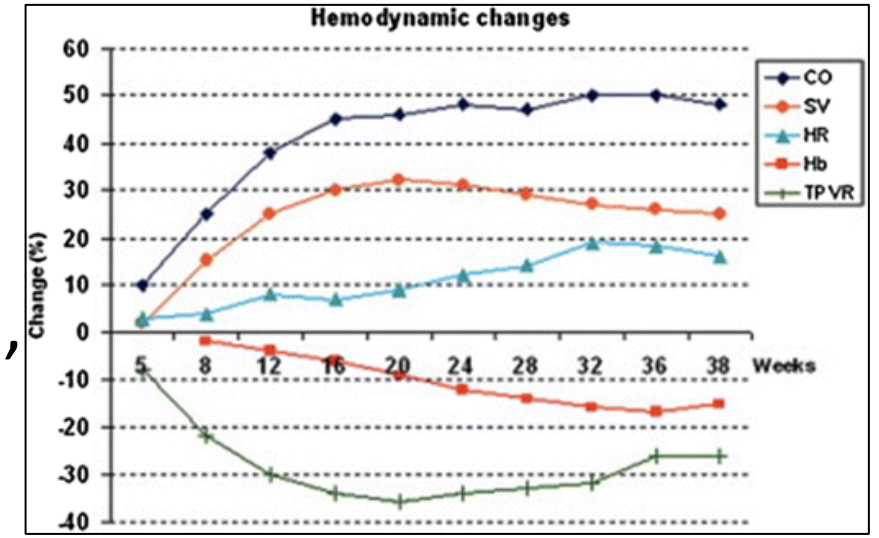
# RIVALUTAZIONE CLINICA

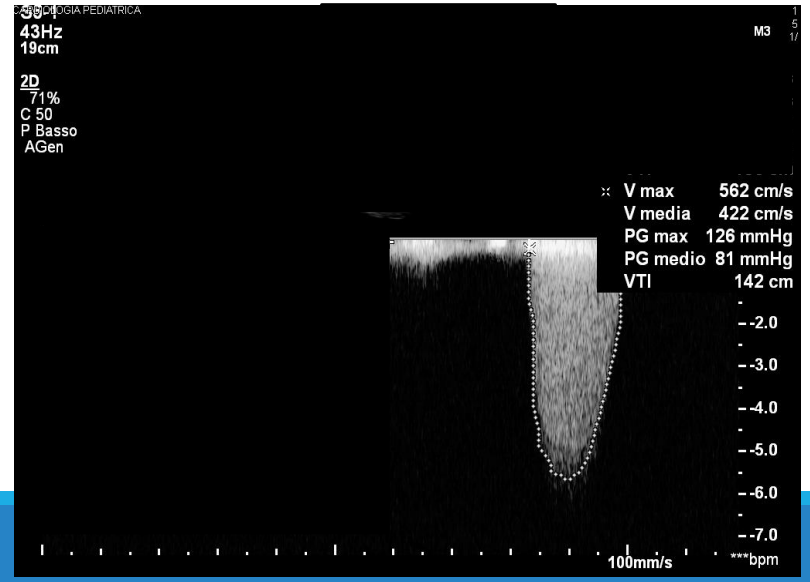
Giugno 2022, **26 WG**

Clinicamente maggior affaticabilità (sforzi moderati), NYHA II-III (valutazione inficiata dalla gravidanza)

NTproBNP 200 pg/ml

Ecocardiogramma-TT: DTD 42 mm, FE 65%, SAo severa (grad max/medio 126/81 mmHg, v max 5.6 m/s); IAo 2-3+



# RIVALUTAZIONE CLINICA

Luglio 2022, **30 WG**

Clinicamente stabile in classe NYHA II-III

NTproBNP 278 pg/ml

EcoTT: gradient stabili

# COSA AVRESTE FATTO?


A. Taglio cesareo a 30 settimane di gestazione

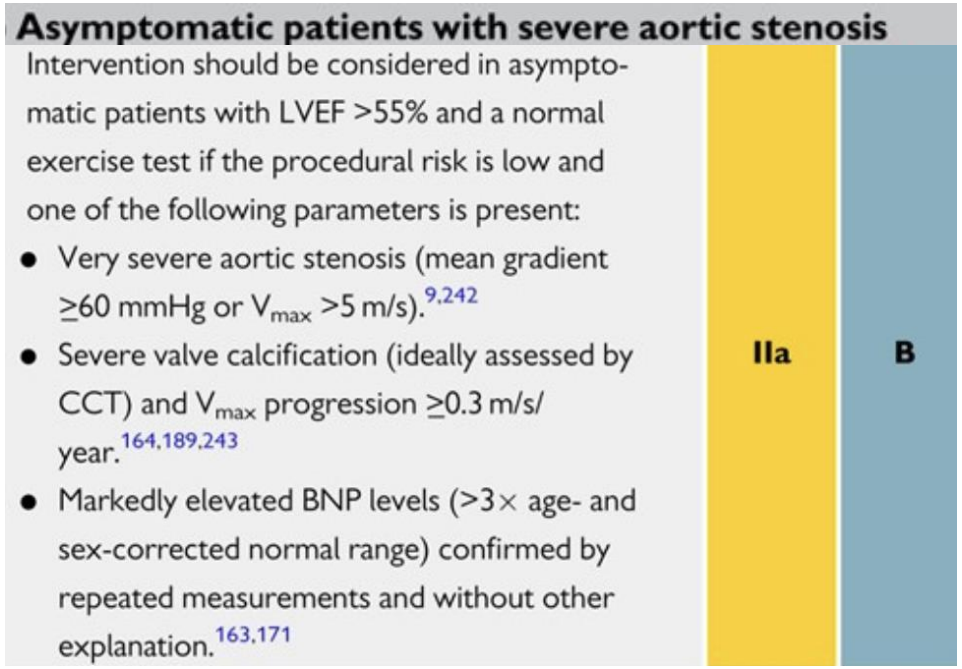
B. Follow up e terapia medica

C. Valvulopalastica percutanea

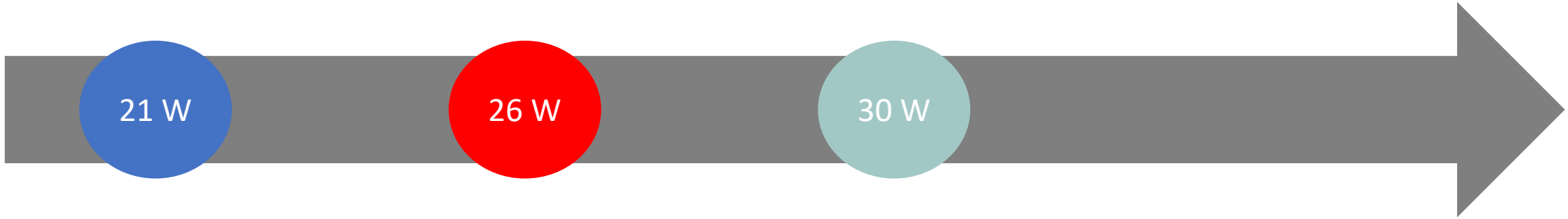
Paziente in classe NYHA II-III (all'inizio della gravidanza NYHA I)

Gradienti in aumento rispetto ad inizio gravidanza (grad medio 81 mmHg, v max 5.6 m/s)

In vista del parto si propone alla paziente procedura di valvulopalastica aortica per via percutanea, che la paziente accetta



| Asymptomatic patients with severe aortic stenosis | | |
|---|---|---|
| Intervention should be considered in asymptomatic patients with LVEF >55% and a normal exercise test if the procedural risk is low and one of the following parameters is present:<br>• Very severe aortic stenosis (mean gradient ≥60 mmHg or $V_{max}$ >5 m/s).[9,242]<br>• Severe valve calcification (ideally assessed by CCT) and $V_{max}$ progression ≥0.3 m/s/year.[164,189,243]<br>• Markedly elevated BNP levels (>3× age- and sex-corrected normal range) confirmed by repeated measurements and without other explanation.[163,171] | IIa | B |




Dopo discussione collegiale, programmata valvulopalastica percutanea per il 1/8/2022

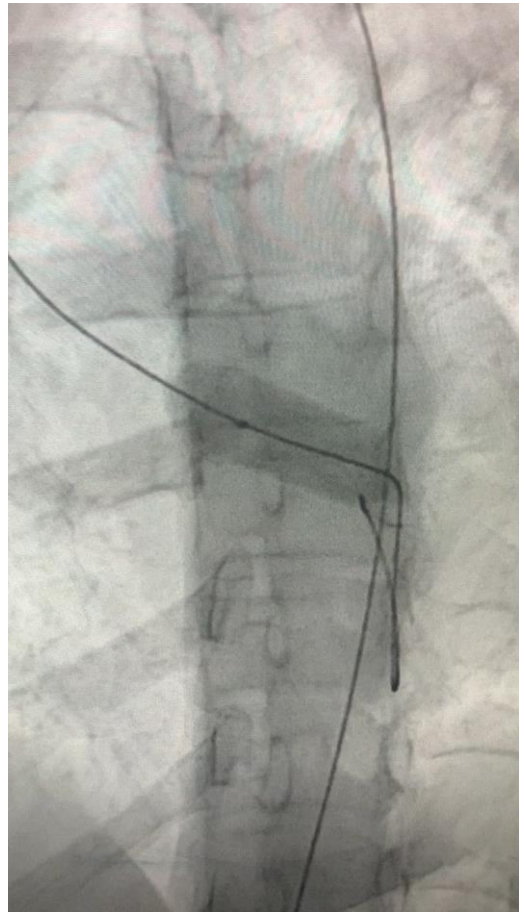
# VALVULOPLASTICA PERCUTANEA

Agosto 2022, **30 WG**

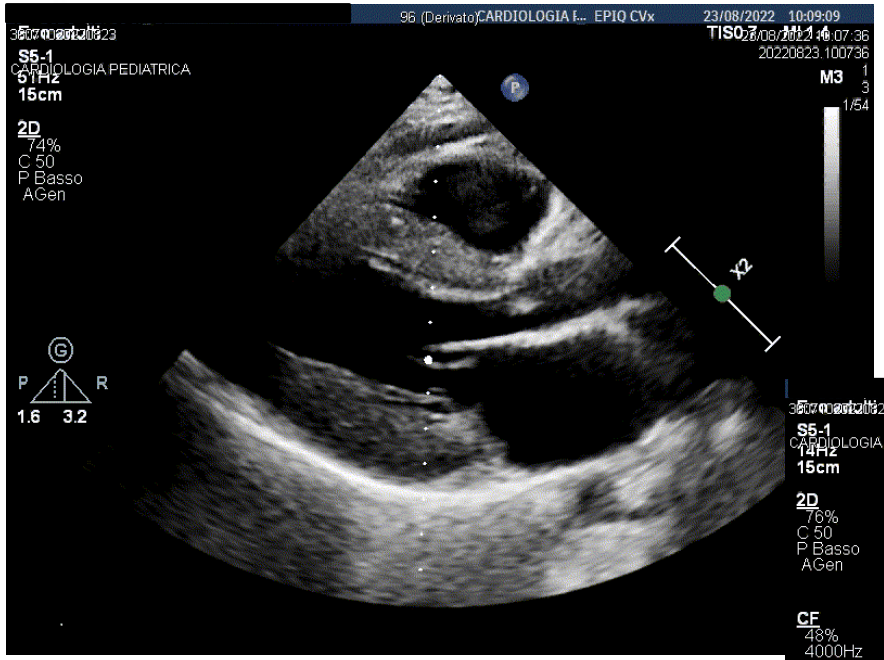
Valvuloplastica aortica percutanea con pallone 16 x 40 mm

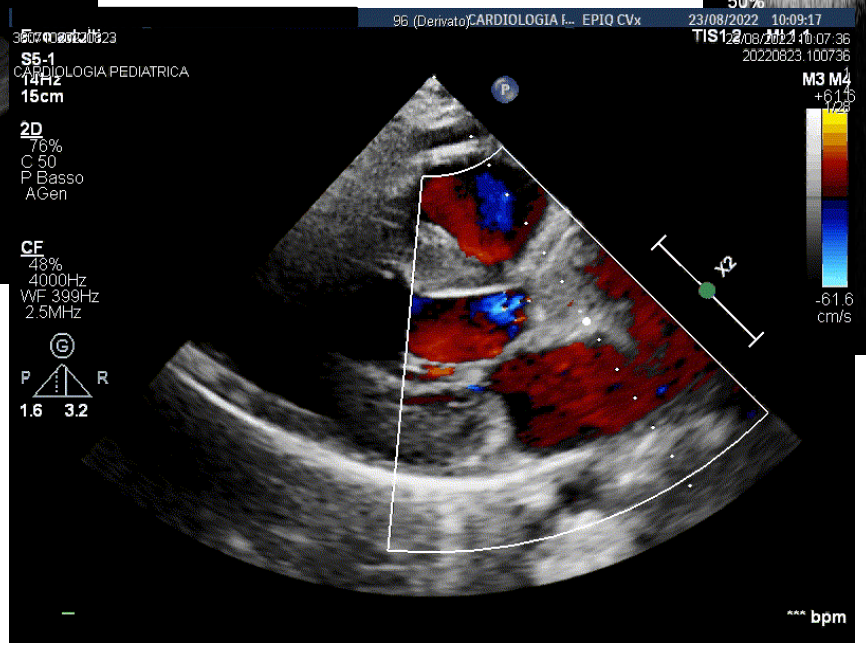
Gradiente di picco invasivo pre-op 115 mmHg, post-op 90 mmHg

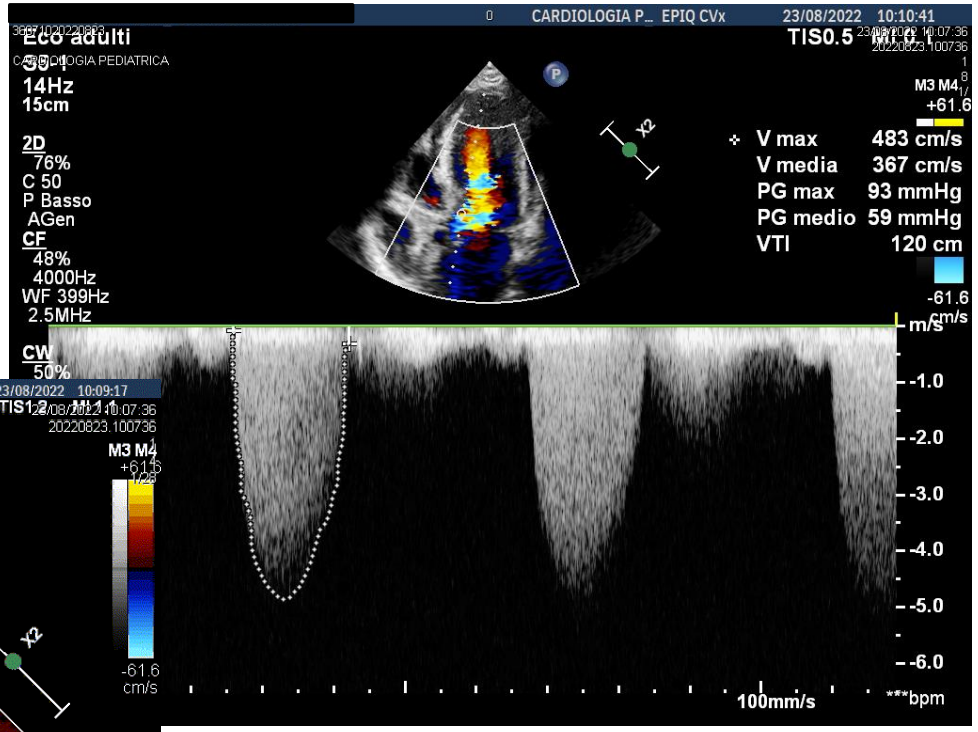
Insufficienza aortica residua di grado lieve moderato



# ECOCARDIOGRAMMA TT



# RICOVERO PER SOSPETTA PE

Settembre 2022, **36 WG**

La paziente viene ricoverata per sospetta pre-eclampsia: lieve emoconcentrazione, edemi declivi, dosaggio ematico PlGF e della PAPP-A predittivo di possibile evoluzione

NYHA II

NTproBNP 250 pg/ml

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# ECG

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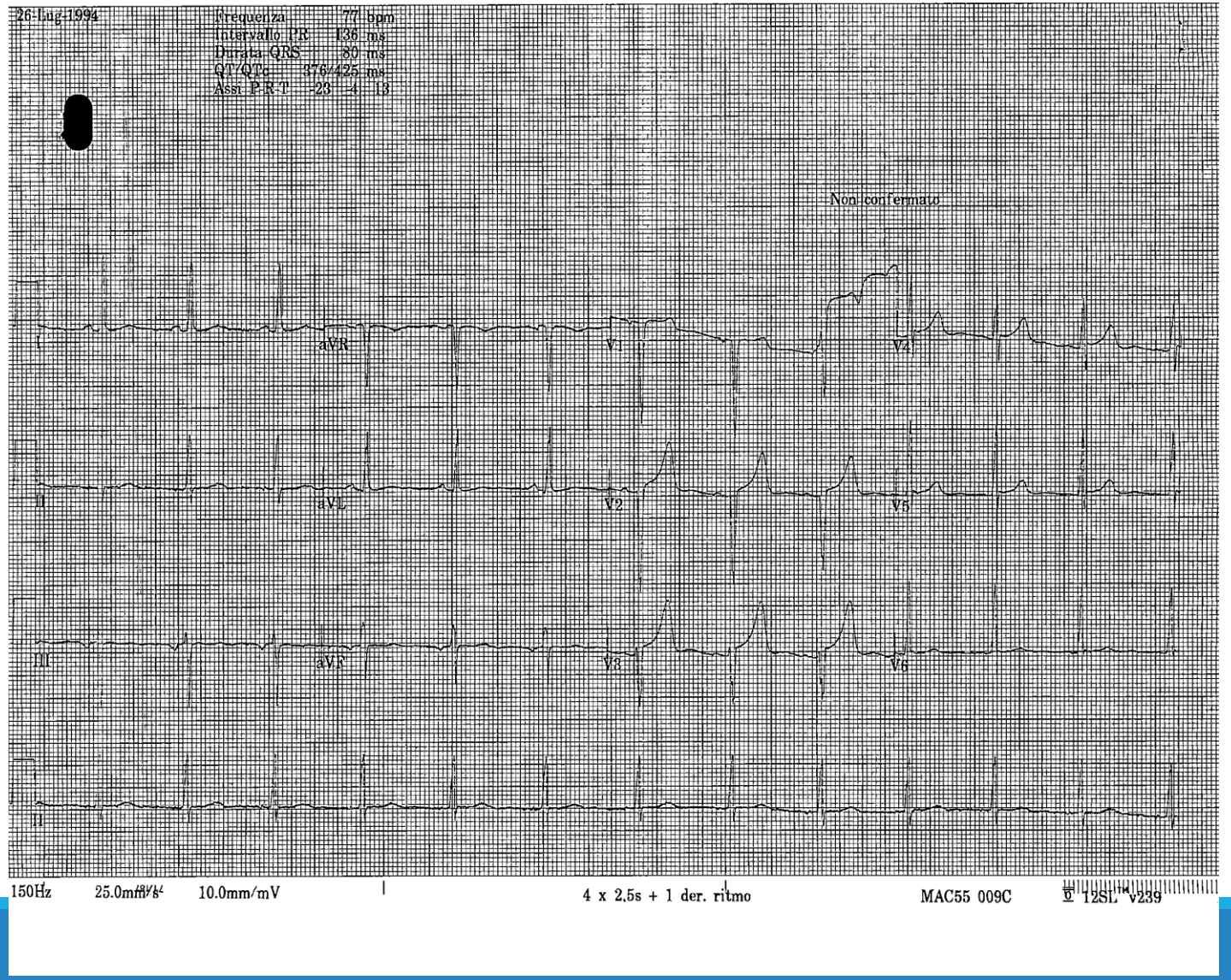
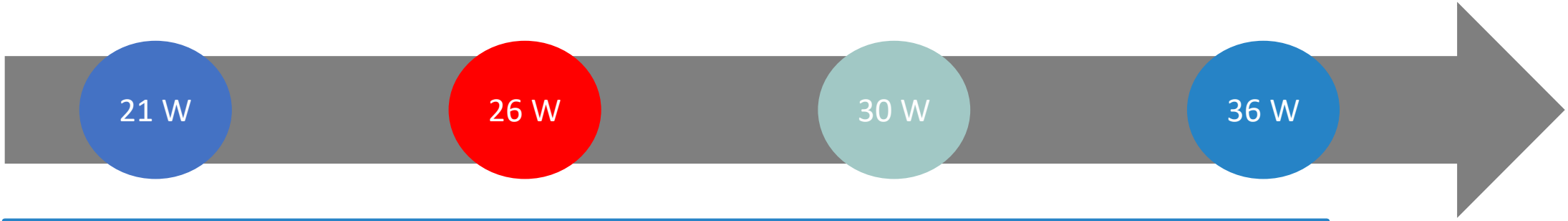


# PARTO

## Taglio cesareo o parto spontaneo?

- ESC 2018: «*In severe symptomatic AS, caesarean delivery should be preferred. An individual approach is recommended for asymptomatic severe AS. In non-severe AS, vaginal delivery is favoured*»
- Orwat et al 2016: «*current recommendations support vaginal delivery with an assisted second stage of labor in the majority of patients*»
- *ACC 2018:* «vaginal delivery with consideration of an assisted second stage of labor to reduce the need for prolonged Valsalva is appropriate.»

# PARTO




Induzione meccanica (Cook) + farmacologica (misoprostolo)

Paziente stabile emodinamicamente ed asintomatica

PN 2270 g (50° centile), APGAR 8/8

# CONCLUSIONI

- La gravidanza è una condizione critica per le malattie valvolari
- La stenosi aortica severa asintomatica non è una controindicazione alla gravidanza
- La stenosi aortica severa sintomatica è una controindicazione alla gravidanza
- Nel caso di una gravidanza in corso, se la paziente diventa sintomatica, le possibilità terapeutiche sono terapia medica e/o valvuloplastica percutanea

**E ORA?** Intervento di Ross-Konno? Sostituzione valvolare aortica con bioprotesi? Protesi meccanica?

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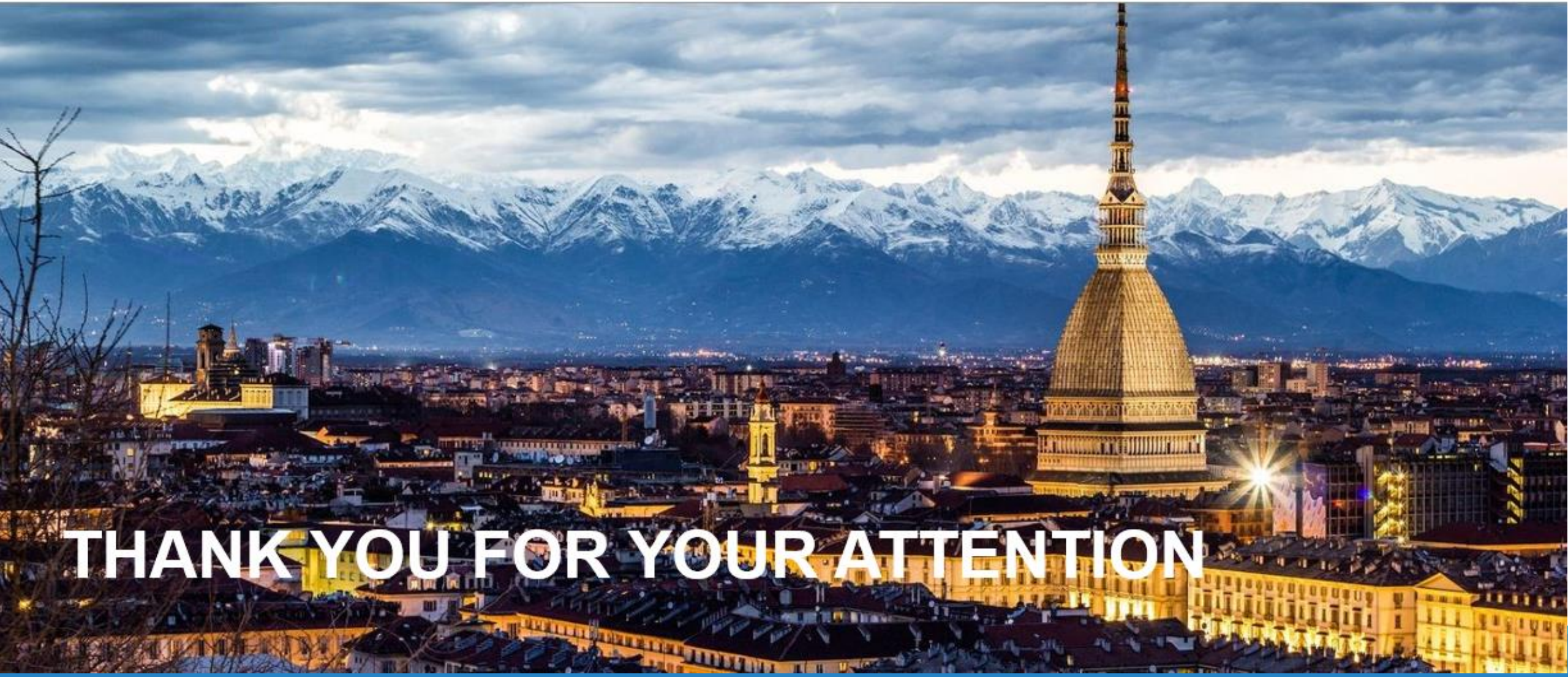

# THANK YOU FOR YOUR ATTENTION