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Maternal autoimmune disease and fetal defects

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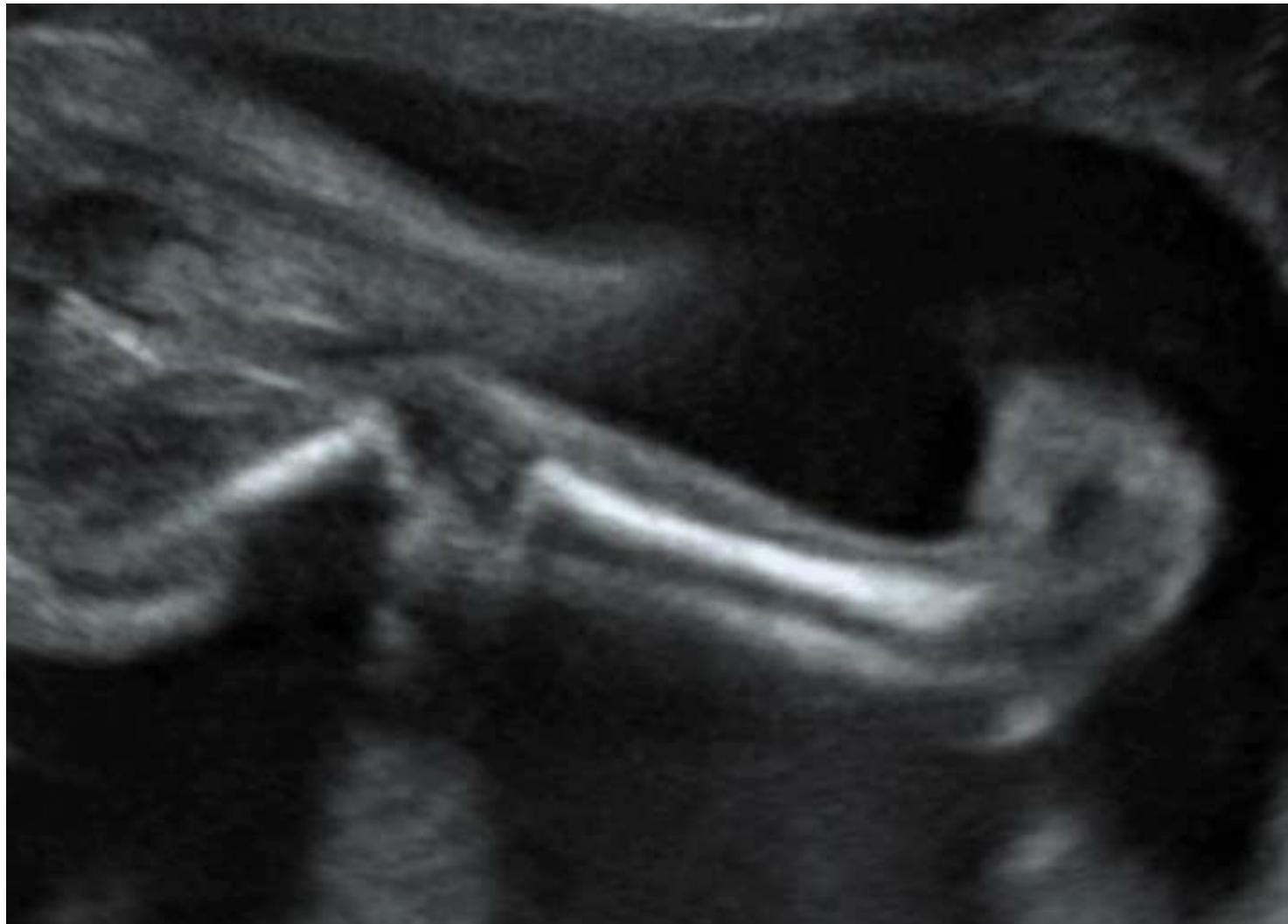


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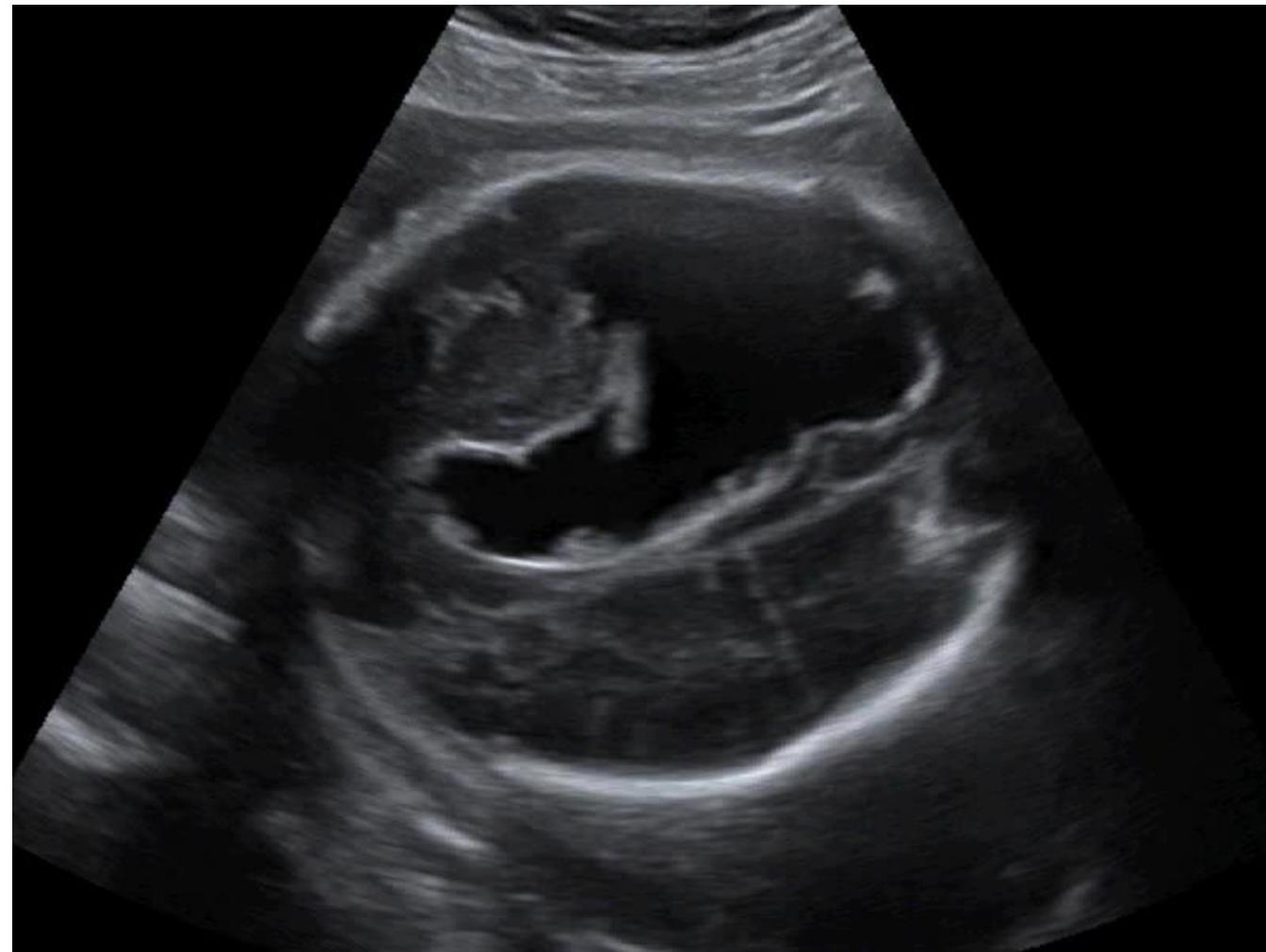


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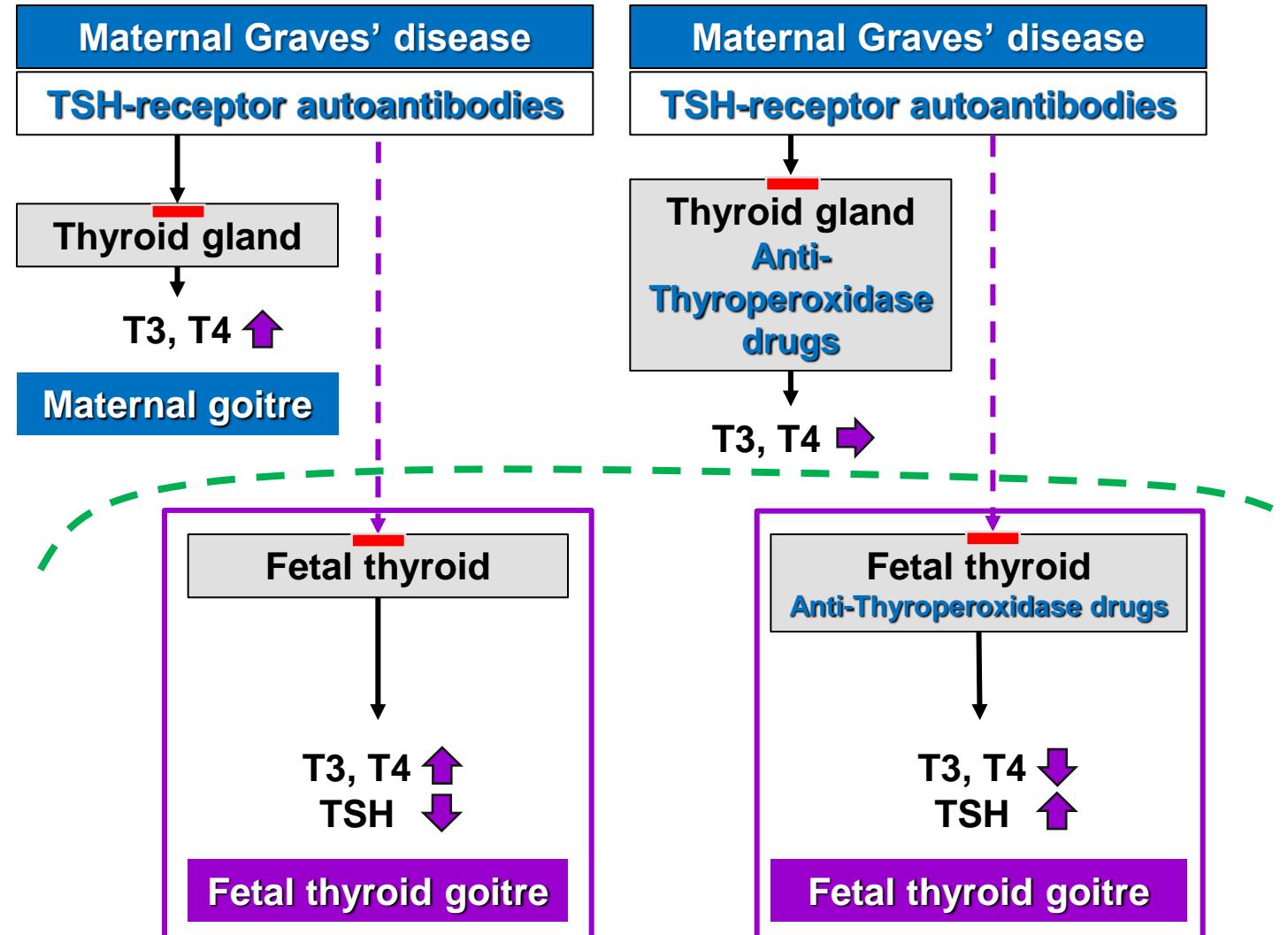
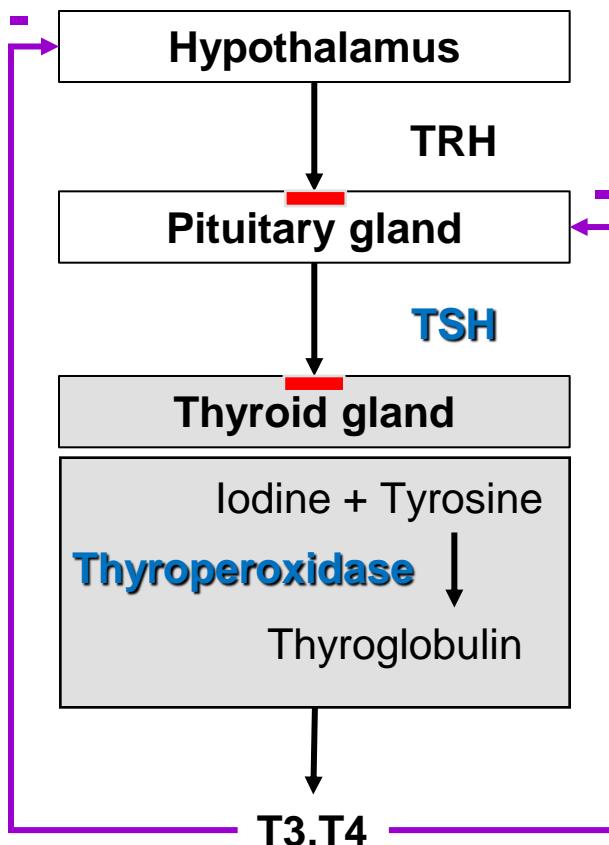
Maternal autoimmune disease and fetal defects

- **Graves' disease and fetal thyroid goitre**
- **Anti Ro/La antibodies and fetal heart block**
- **Myasthenia gravis and fetal arthrogryposis**
- **Immune thrombocytopenia and intracranial hemorrhage**



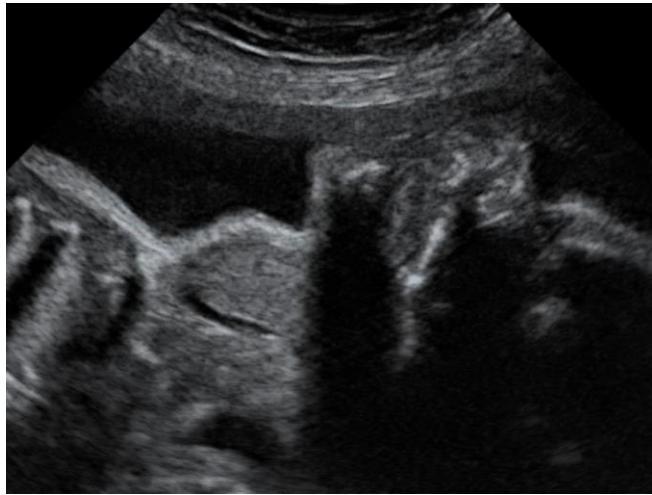
Maternal Graves' disease

Fetal thyroid goitre





Fetal thyroid goitre Management



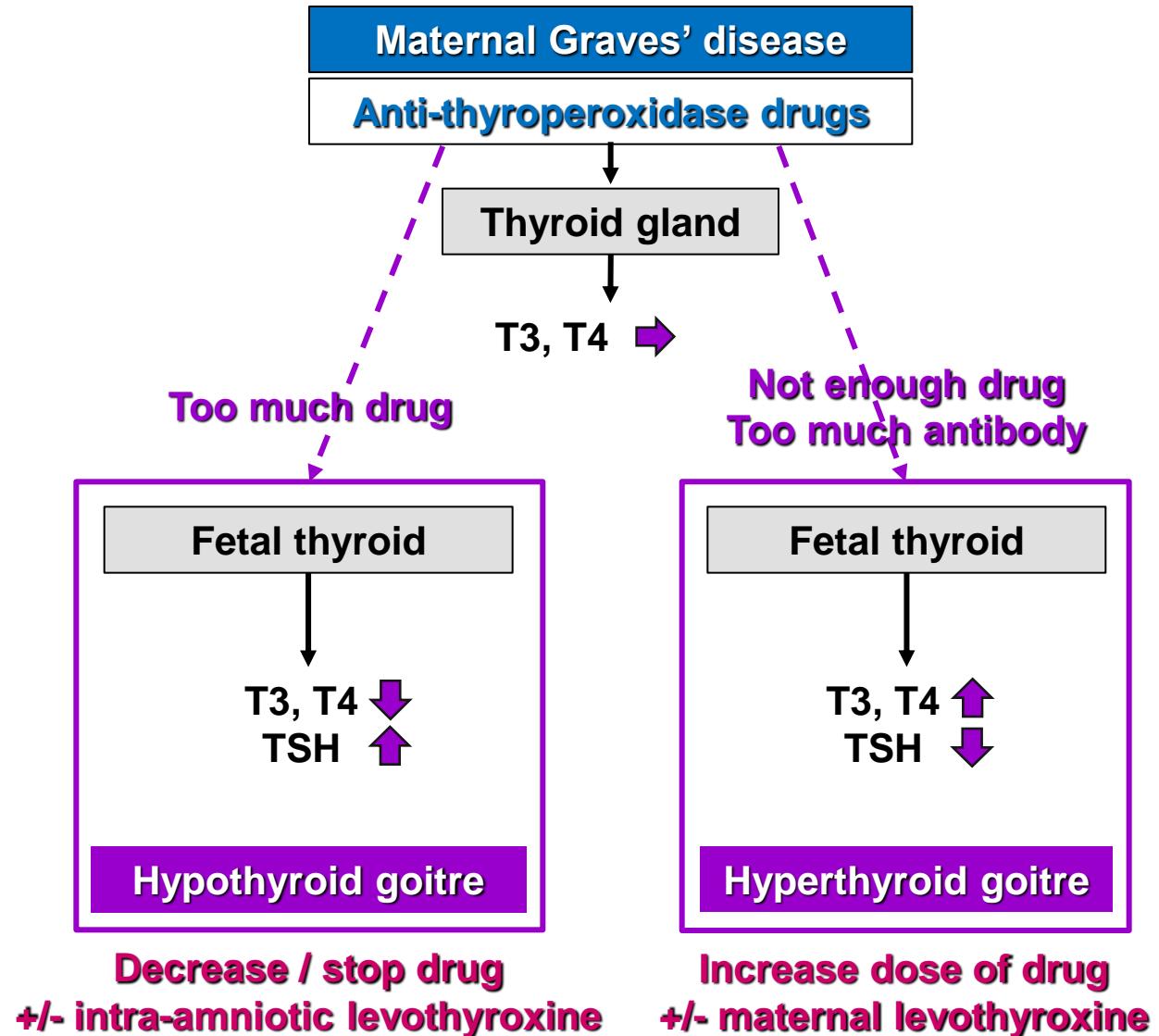
Incidence of goitre: 1 / 5,000 births

Causes: Graves' disease 80%
(1 in 500 pregnancies)

Risk to the fetus: 10%

Effects:

- Obstruct swallowing
- Prevent head flexion in labor
- Compress trachea
- Hypothyroidism – neuro sequelae



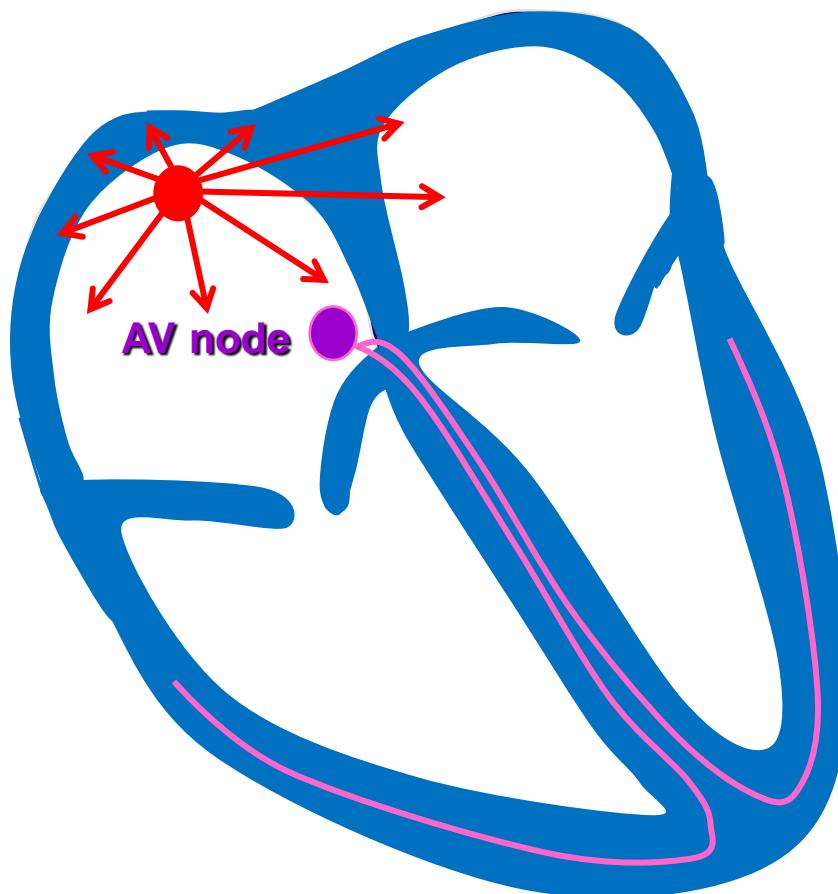


Maternal anti Ro/La antibodies

Fetal heart block



Fetal heart block



1st degree: prolongation of PR interval

2nd degree: most atrial contractions transmitted to the ventricles

3rd degree: NO atrial contractions transmitted to the ventricles

Normal heart:

- Anti Ro / La
- Diabetes mellitus, phenylketonuria
- Anticonvulsants, lithium
- Coxsackie virus, cytomegalovirus

Abnormal heart:

- Heterotaxy syndromes
- Transposition of great arteries
- Atrial / ventricular septal defects
- Tetralogy of Fallot



Maternal anti Ro/La antibodies

Fetal heart block



Incidence of CHB: 1/20,000 births

Causes: Maternal anti Ro/La 60%
(1 in 100 pregnancies)

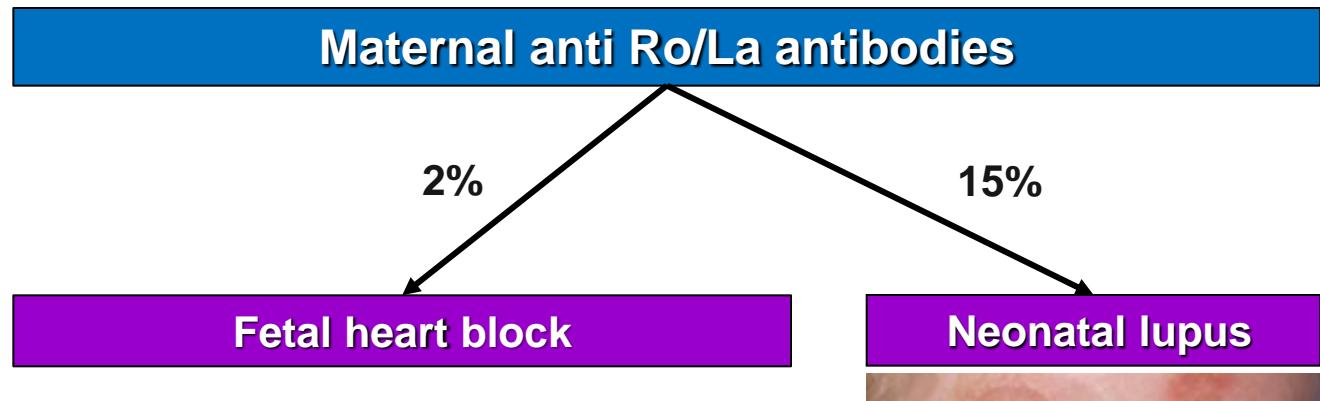
Risk to the fetus: 0.2-2%
(antibody level >50U/ml)

Effects:

- Heart failure
- Hydrops fetalis
- Perinatal and infant death

Recurrence in anti Ro/La:

- x1 15%, x2 50%





Maternal anti Ro/La antibodies

Management

Pregnancies with anti Ro/La antibodies

2%

Hydroxychloroquine

Fetal heart block

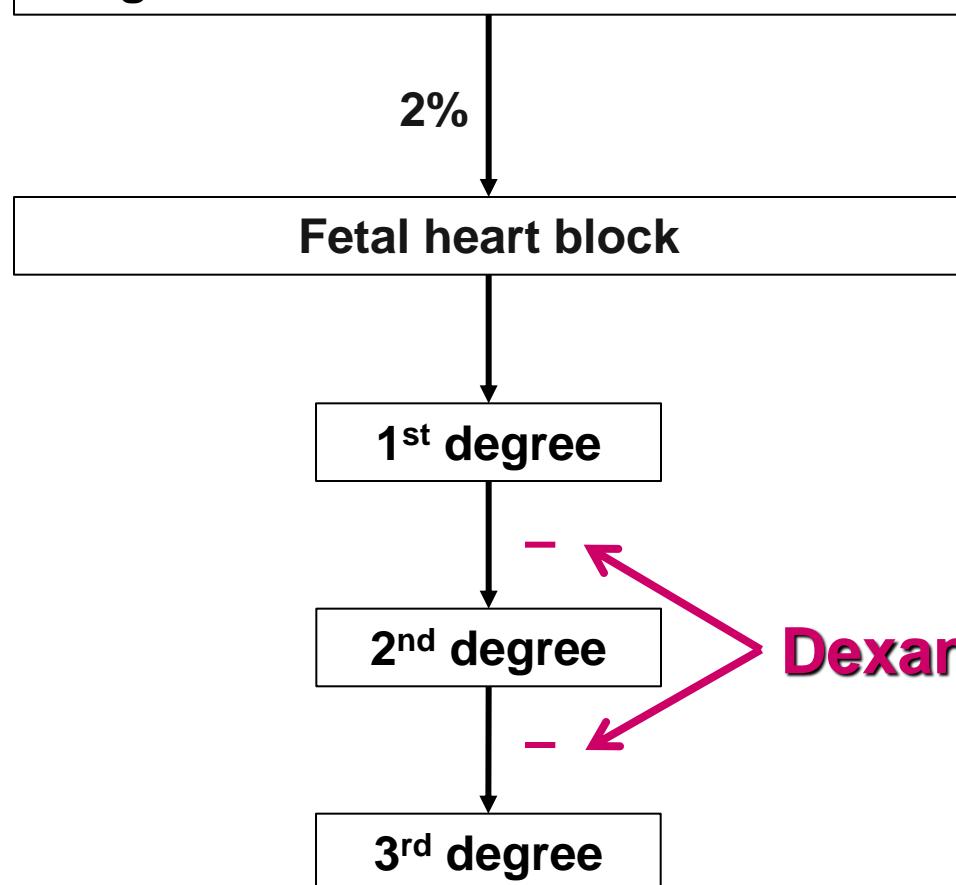
- Useful for skin rashes, pains and fatigue of SLE
- Safe to use in pregnancy
- Reduces risk of development of congenital heart block



Maternal anti Ro/La antibodies

Management

Pregnancies with anti Ro/La antibodies



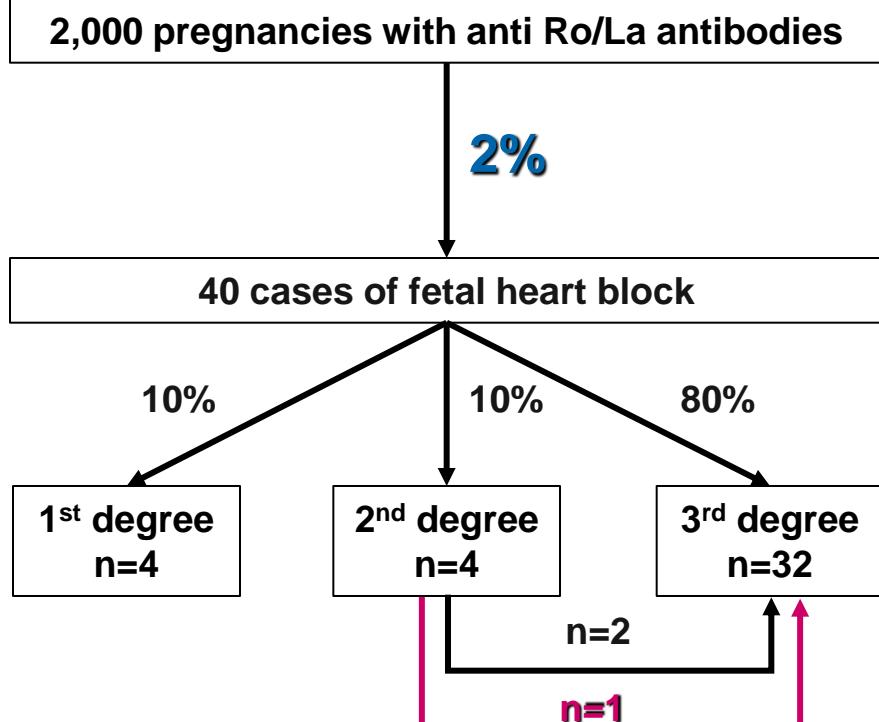
On the assumption that:

- Antibodies cause 1st degree block that progresses to 2nd and then 3rd degree
- Dexamethasone blocks this evolution

Perform serial fetal cardiac scans every week from 16 to 34 weeks



Maternal anti Ro/La antibodies Management



Monitoring all cases weekly at 16-34 w

1st pregnancy – risk 2%

2000 x 20 = 40,000 scans to avoid 1 case of CHB

1 affected pregnancy – risk 15%

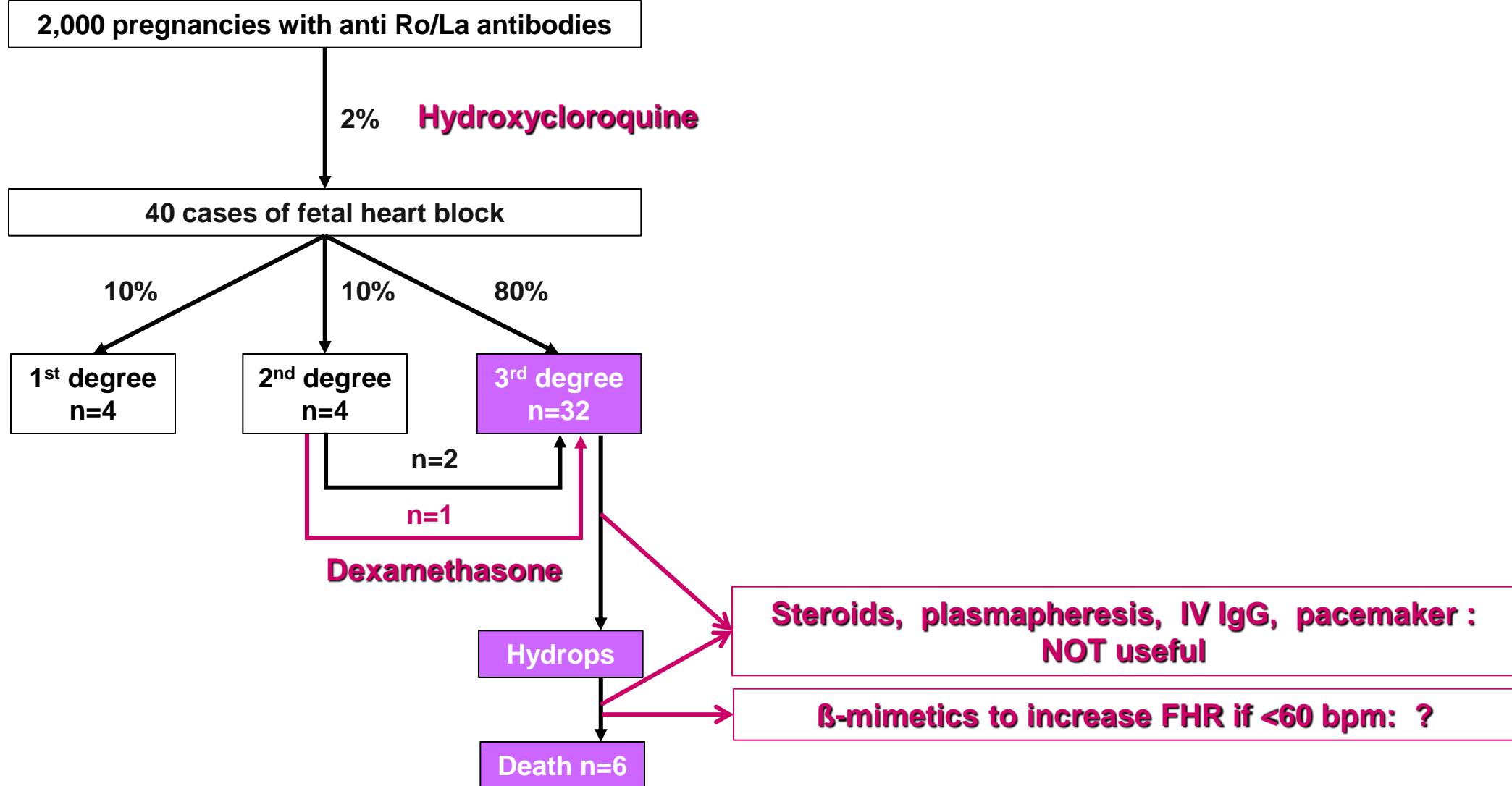
5,300 scans to avoid 1 case of CHB

2 affected pregnancies – risk 50%

1,600 scans to avoid 1 case of CHB



Maternal anti Ro/La antibodies Management



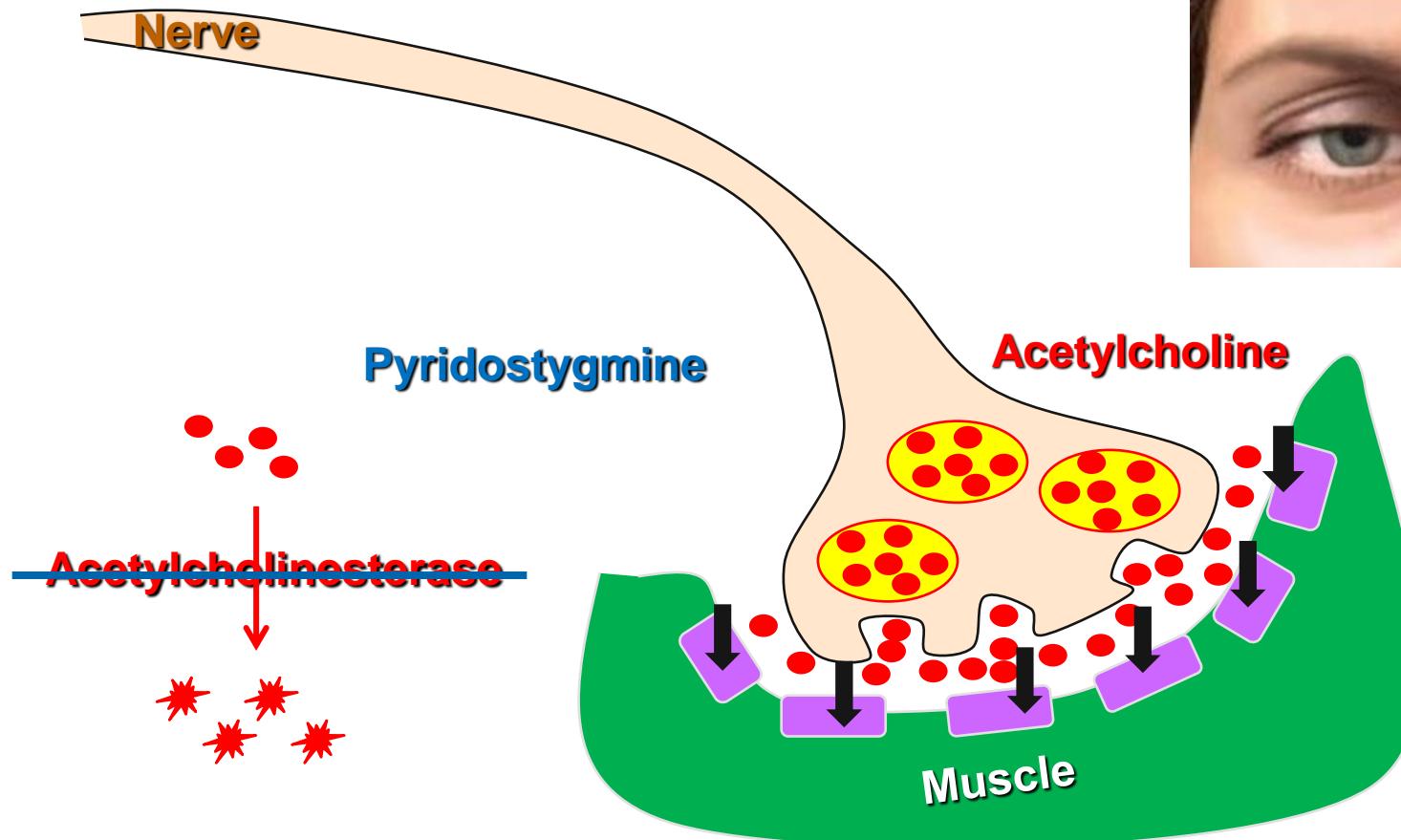


Maternal myasthenia gravis

Arthrogryposis multiplex congenita



Maternal myasthenia gravis



Acetylcholine receptor antibodies



- Treatment:**
- Pyridostygmine
 - Thymectomy
 - Plasmapheresis
 - Steroids
 - IV IgG



Maternal myasthenia gravis

Arthrogryposis multiplex congenita



Incidence of arthrogryposis: 1/1,000 births

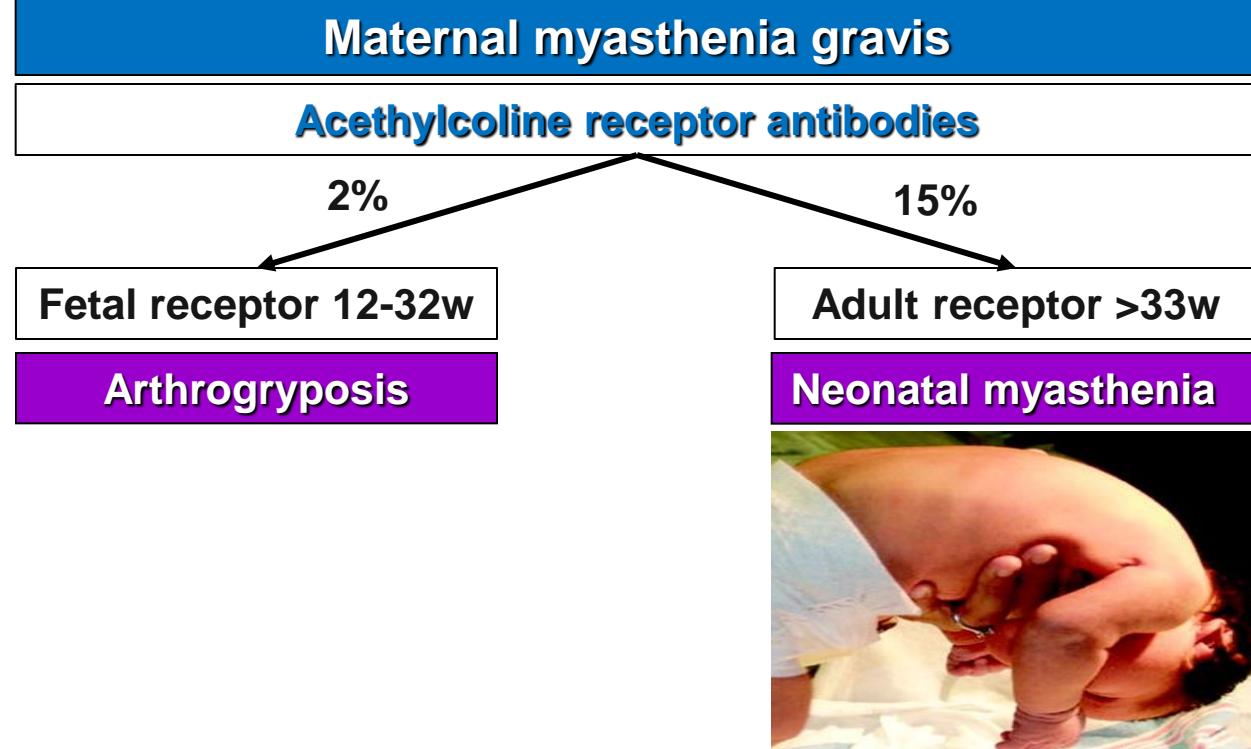
Causes:

- Oligohydramnios, genetic syndromes
- Maternal myasthenia gravis <1%
(1 in 30,000 pregnancies)

Effects:

- Polyhydramnios – preterm birth
- Perinatal infant death

Recurrence with myasthenia: up to 100%



Prevent recurrence:

- Excision of the thymus gland

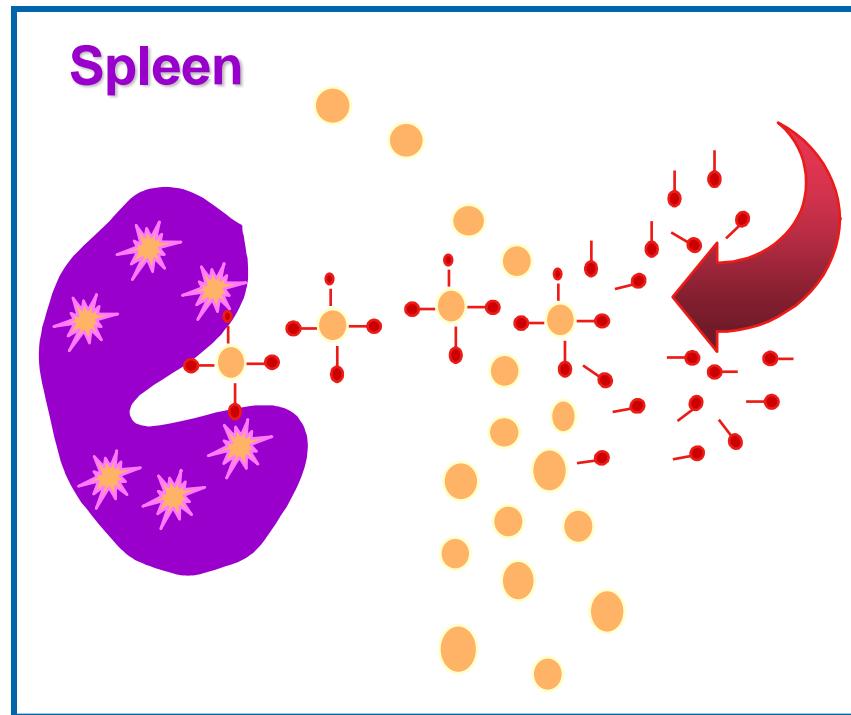


Autoimmune thrombocytopenia

Fetal brain hemorrhage



Autoimmune thrombocytopenia



Definition: Platelet count $<100 / \mu\text{L}$

Incidence: 1/500 pregnancies

Management:

- Exclude other causes
- Serial platelet counts
 - Every 2-4 weeks
 - $<80 / \mu\text{L}$ >34 w: every week

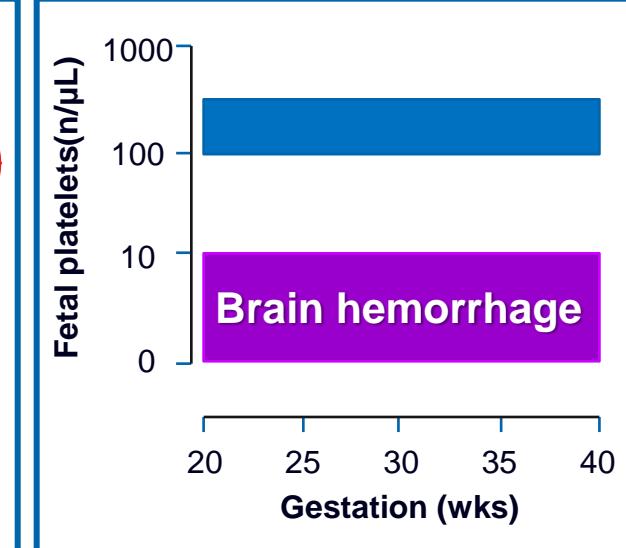
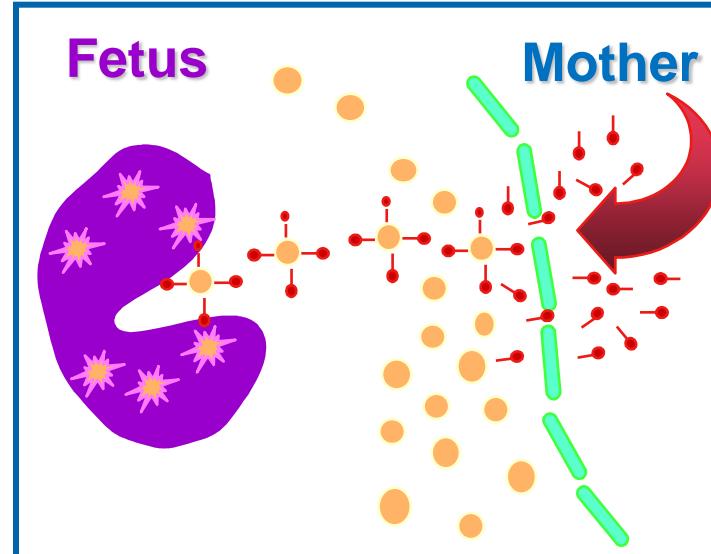
Treatment:

- Prednisolone / IV IgG
 - $<30 / \mu\text{L}$ during pregnancy
 - $<50 / \mu\text{L}$ before delivery



Autoimmune thrombocytopenia

Fetal brain hemorrhage



Causes:

- Mainly prematurity
- Immune thrombocytopenia

Effects:

- Fetal death
- Neurological sequelae

Recurrence: ?%

	Autoimmune	Alloimmune
Incidence	1:500	1:2,000
Brain hem'ge	1%	20%
Treatment:	Steroids	IV IgG



Graves' disease

1 / 500 pregnancies

↓
10%

Fetal thyroid goitre
1 in 5,000 births

Anti Ro/La antibodies

1 / 100 pregnancies

↓
2%

Fetal heart block
1 in 20,000 births

15% neonatal lupus

Myasthenia gravis

1 / 30,000 pregnancies

↓
<1%

Fetal arthrogryposis
1 in 1,000 births

15% neonatal myasthenia

Anti PLA antibodies

1 / 500 pregnancies

↓
1%

Fetal brain bleed
1 in 50,000 due to
anti PLA

Adjust propylthiouracil
Maternal / fetal thyroxine

Hydroxychloroquine
? Steroids, IV IgG

Thymectomy
? Steroids, IV IgG

Steroids, IV IgG

Thank you



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Maternal anti Ro/La antibodies Management

2,000 pregnancies with anti Ro/La antibodies

2% **Hydroxychloroquine**

- Useful for skin rashes, pains and fatigue of SLE
- Safe to use in pregnancy
- Reduces risk of development of congenital heart block

40 cases of fetal heart block

10%

1st degree
n=4

10%

2nd degree
n=4

80%

3rd degree
n=32

n=2

n=1

Dexamethasone

Hydrops

Steroids, plasmapheresis, IV IgG, pacemaker :
NOT useful

β-mimetics to increase FHR if <60 bpm: ?

Death n=6

2,000X20=40,000 scans
to avoid 1 case of CHB