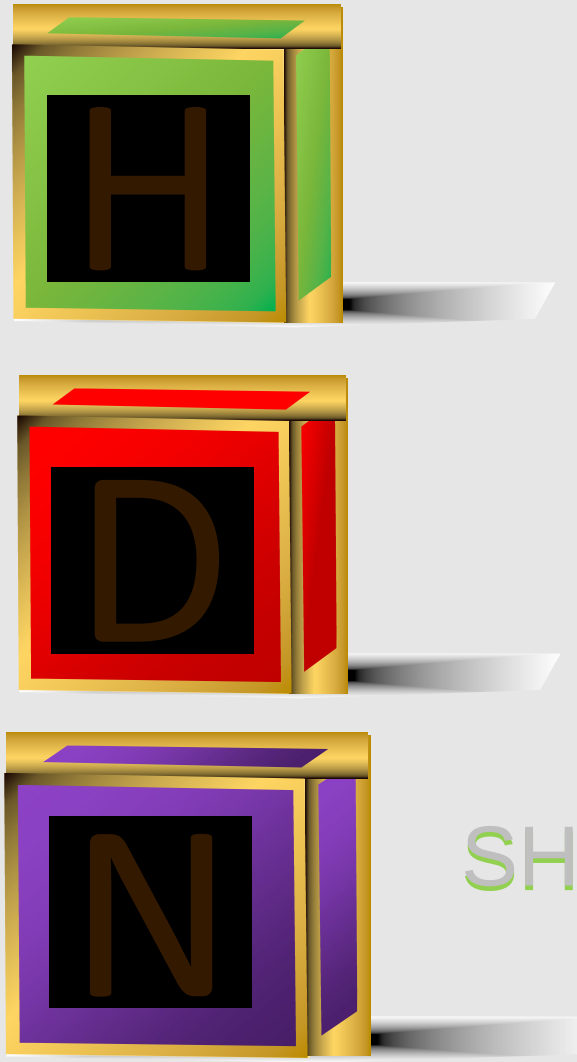
Anti-D Errors & Potential for:



SHOT 2011

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Healthcare NHS Trust

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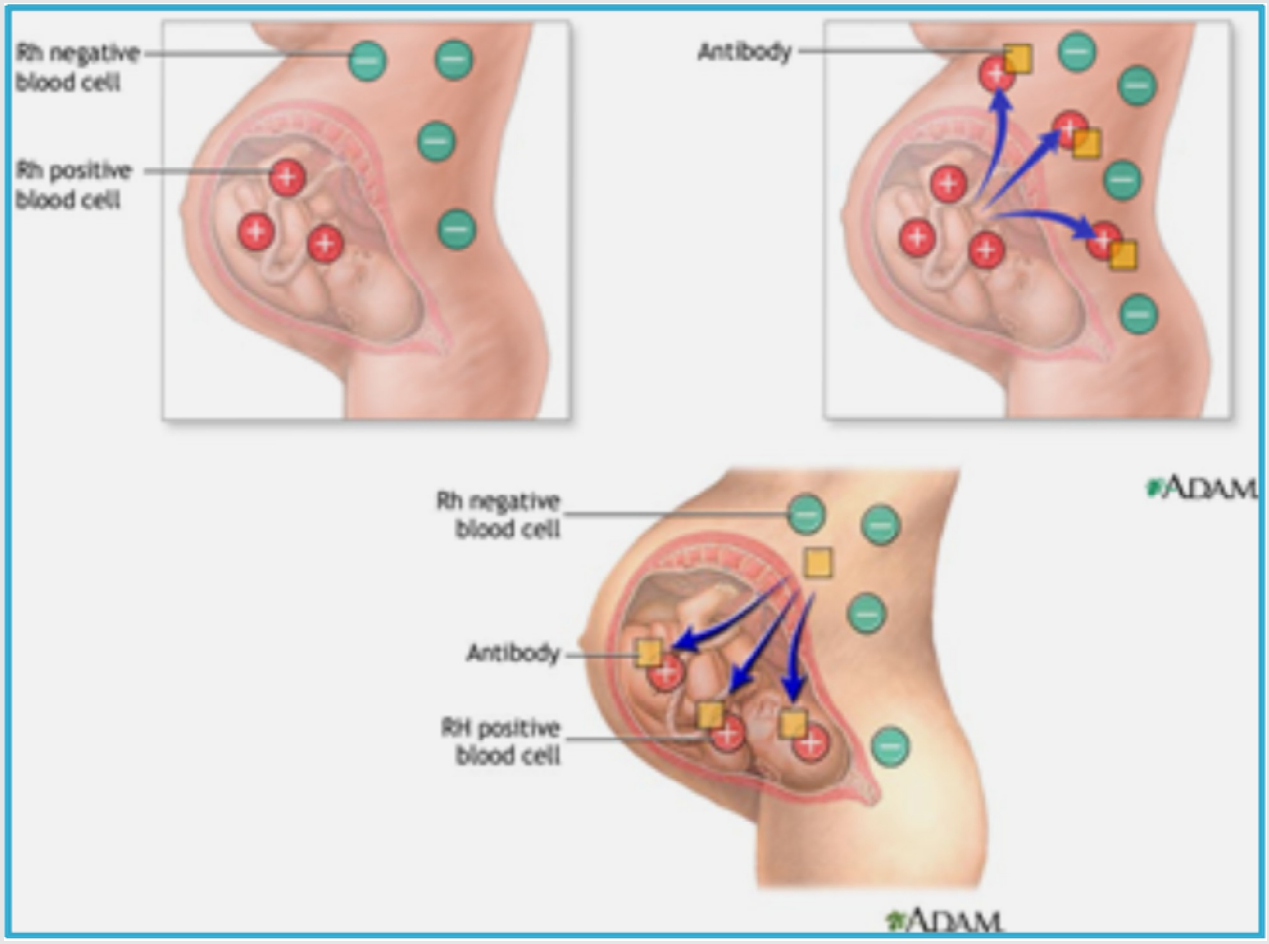
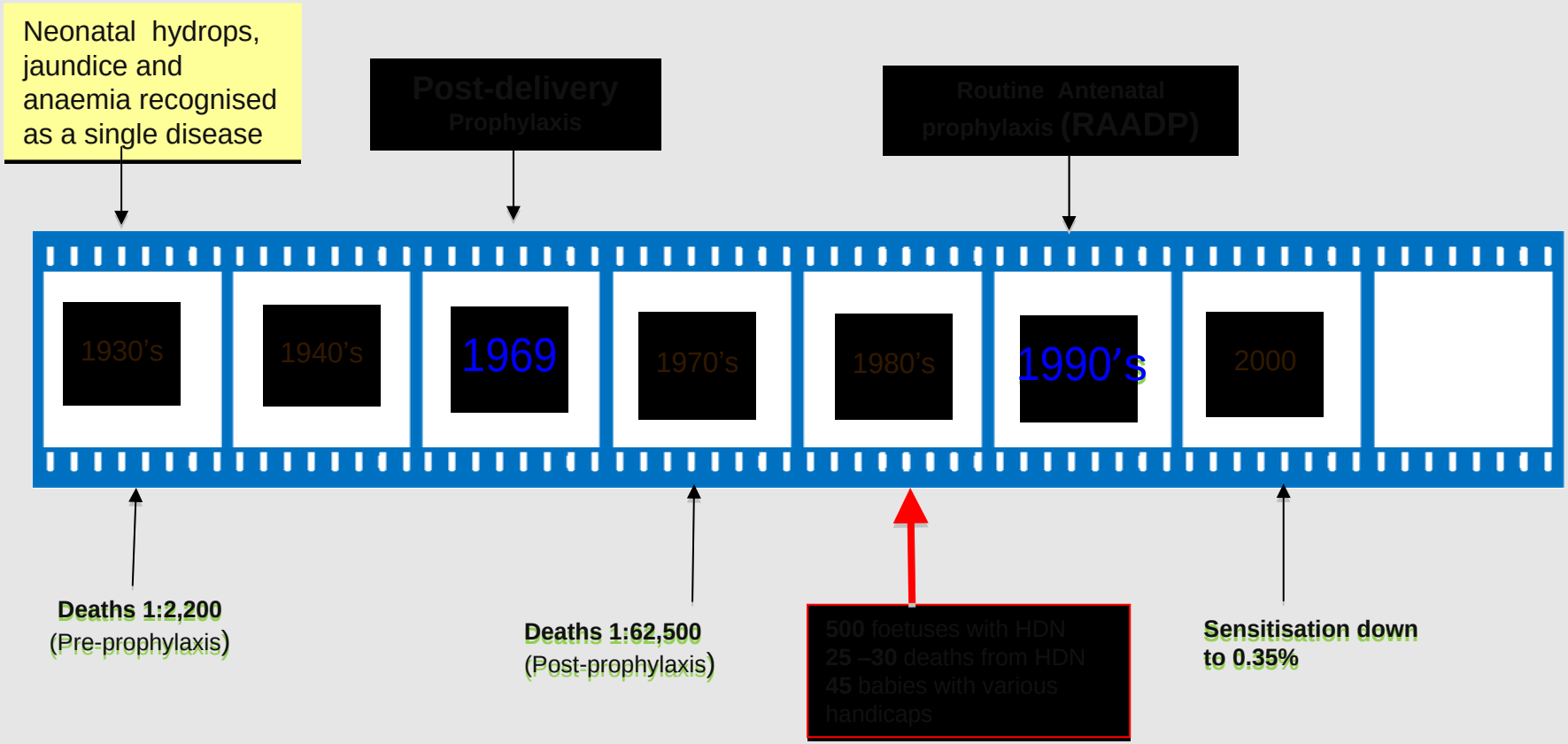
HAEMOLYTIC DISEASE OF NEWBORN (HDFN)

- **Anti-D,** Anti-K, Anti-c and many others
- Baby carries the red cell antigen to which the mother has produced an antibody against.

Sensitisation



History


Neonatal hydrops, jaundice and anaemia recognised as a single disease
Post-delivery Prophylaxis
Routine Antenatal prophylaxis (RAADP)
1930's
1940's
1969
1970's
1980's
1990's
2000
Deaths 1:2,200
(Pre-prophylaxis)
Deaths 1:62,500
(Post-prophylaxis)
500 foetuses with HDN
25 –30 deaths from HDN
45 babies with various handicaps
Sensitisation down to 0.35%

Prevention: Anti-D (Ig)

- Saves lives
- Saves money
- Simple Protocol

Anti-D prophylaxis has drastically reduced a very severe and often fatal neonatal condition

Regime for Anti-D Ig

Minimum doses for potentially sensitising events (PSE)
250 IU up to 20 weeks gestation for PSE
500 IU after 20 weeks gestation **AND** estimation of FMH
500 IU post delivery **AND** estimation of FMH
RAADP 2 dose regime 500 IU 28 and 34
RAADP 1 dose regime 1500 IU 28 weeks

Anti-D Errors

Serious Hazards of Transfusion (SHOT)

- NOT given or delayed: 157 cases
- Wrong dose : 24 cases
- Given inappropriately: 60 cases

LABORATORY & CLINICAL TEAM EFFORT TO PREVENT THESE ERRORS

Testing

- Group & Screen at Booking and 28 weeks; routine techniques
- If Anti-D detected NEVER ASSUME this is due to prophylaxis.... Check patient history carefully.
- Following a PSE after 20 weeks & post-delivery, give minimum 500 IU Anti-D Ig AND FMH estimation must be performed to determine if MORE is required.
- If FMH positive, repeat test 72hrs after additional Anti-D Ig has been administered to check for clearance of cells

Monitoring: foetus

Doppler sonography: foetal blood flow through brain

- Non-invasive

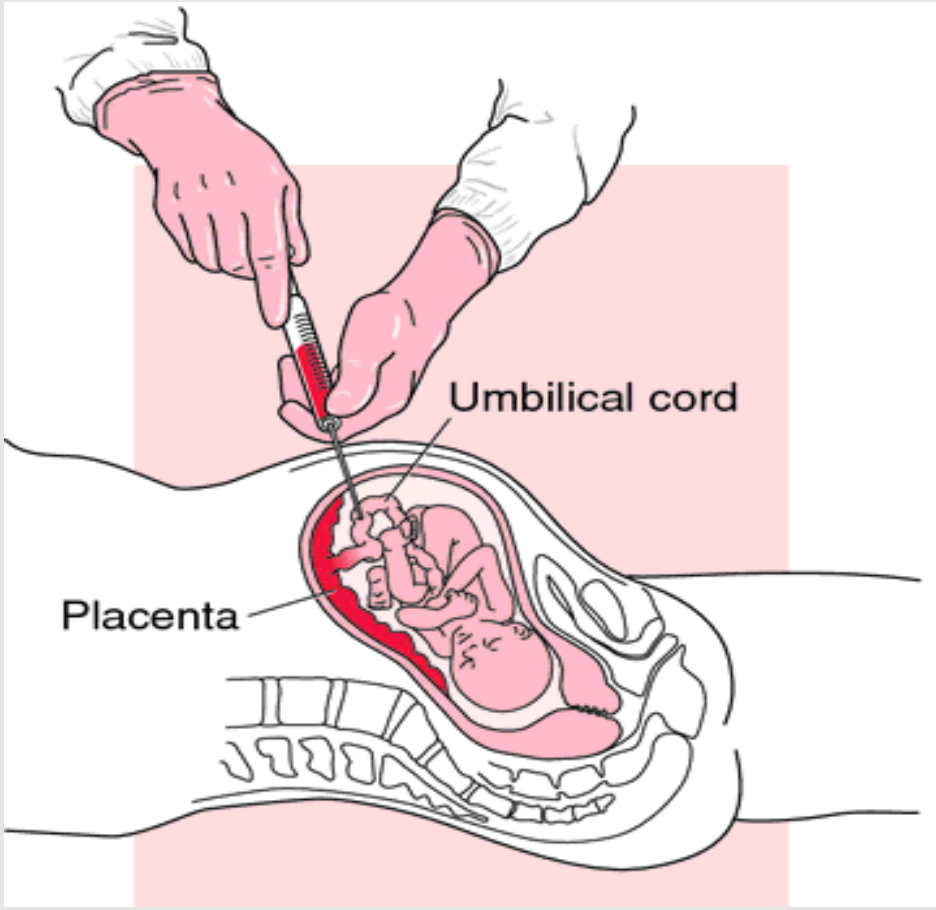
Amniocentesis: sample amniotic fluid/foetal tissue/DNA

- Risk of miscarriage

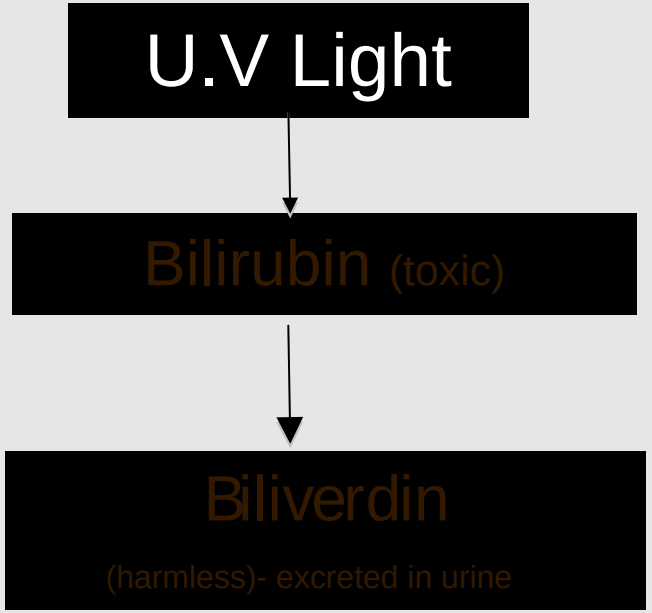
Antibody quantitation/ titres:

- Useful for monitoring but does not always correlate with severity of disease.

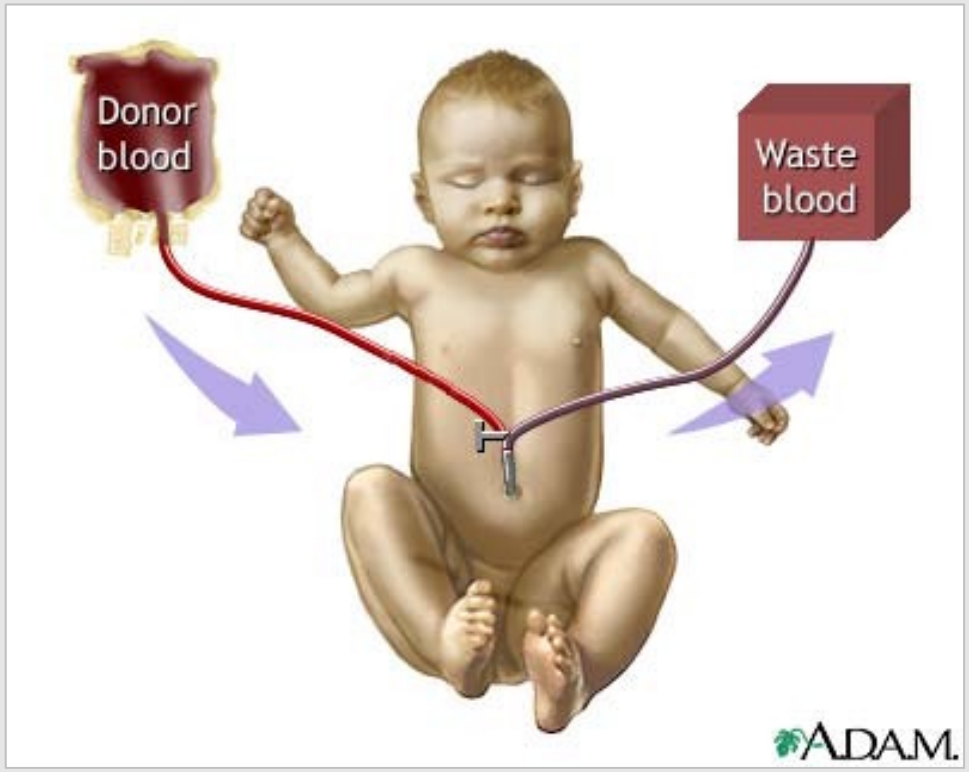
Intrauterine Transfusion



Phototherapy



Exchange Transfusion



Transfused Blood Specification

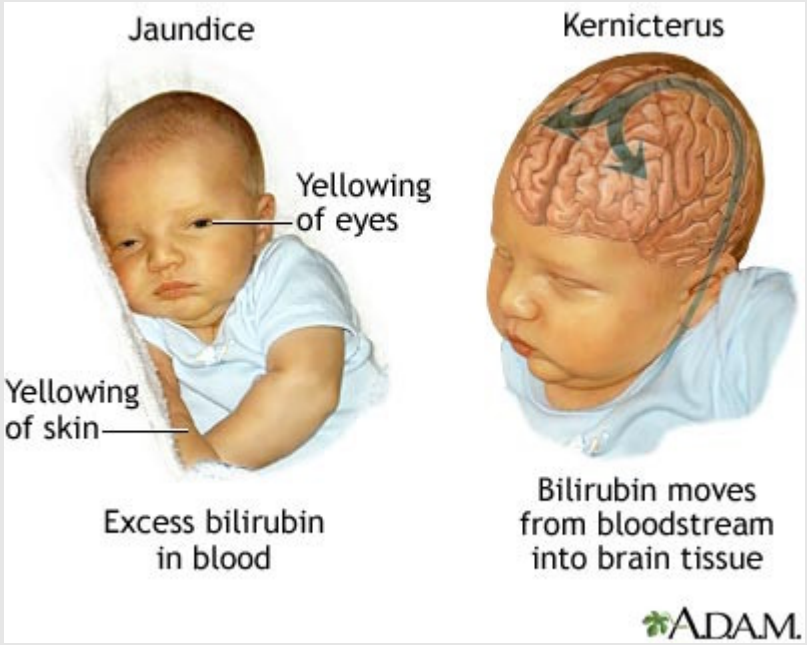
Group O

Negative for Maternal antibodies

CMV-, Irradiated

Fresh (lower potassium levels)

Excess Jaundice



Bilirubin stains brain tissue

KERNICTERUS: Permanent Disability

- movement disorders
- deafness
- form of cerebral palsy
- other neurological conditions

"NEVER EVENT" in U.S.A

Hydrops

KEY RECOMMENDATIONS

Use routine methods for grouping

Administer Anti-D Ig within 72hrs PSE

Anti-D immunoglobulin still has some protective effect up to 10 days after PSE.

If there is doubt of Rh D status or the origin of anti-D detected then administer anti-D Ig and refer for testing / continue monitoring.

KEY RECOMMENDATIONS

Clinical follow-up and re-testing in 6mths where Anti-D Ig administration was delayed / omitted.

PSE after 20 weeks administer Anti-D Ig FIRST then wait for FMH result to determine if more Anti-D Ig is required.

Don't count the RAADP dose for PSE : Always give extra dose regardless.

Educate everyone involved

References

- SHOT Report 2011 table 12.1 p.82
- NICE Guidelines (2008)
- BCSH Guidelines for the use of prophylactic Anti-D immunoglobulin (2006)

Abbreviations:

- HDN: Haemolytic Disease of the Newborn or HDFN: Haemolytic Disease of Foetus and Newborn
- PSE: Post-Sensitising Event
- Ig: Immunoglobulin
- RAADP: Routine Antenatal Anti-D Prophylaxis (given at 28 weeks or 28 and 34 weeks depending on dose)
- FMH : Foetal-maternal Haemorrhage
- IUT : Intrauterine Transfusion
- SHOT: Serious Hazards of Transfusion

*Even though the prevention and treatment of HDFN has been one of the most **brilliant and successful** achievements in medical history, continued vigilance will always be required to prevent harm.*

Thank You!