

Transfuzia de sange la copil

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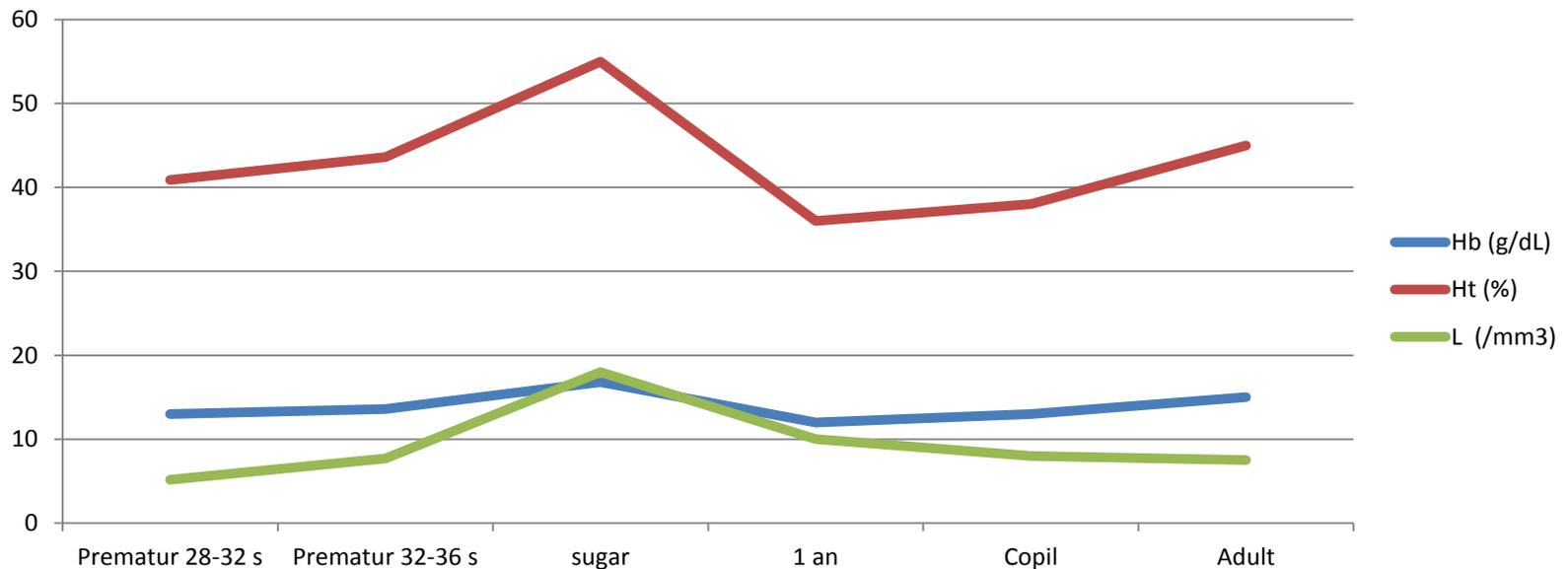
Spit Maria S Curie Bucuresti

Particularitati

- Predomina in per. neonatala - sugar
- Policitemie, reticulocitoza, leucocitoza
18g/dl 5% 16000/mm³
- ↓ PT aPTT= deficientea factori vit-K dependenti
- Conc ↓ prot C si S
- “Anemia fiziologica”
 - NN prematur la 3-6 sapt Hb=7-9 g/dl
 - NN la termen la 8-12 sapt Hb=9-11 g/dl

Valori de laborator

	Prematur 28-32 s	Prematur 32-36 s	sugar	1 an	Copil	Adult
Hb (g/dL)	13	13,6	16,8	12	13	15
Ht (%)	40,9	43,6	55	36	38	45
L (/mm ³)	5,16	7,71	18	10	8	7,5
Tr (/mm ³)	255	260	300	300	300	300



Volumul de sange

Prematur	90-100 ml/kg
Nou nascut termen	80-90 ml/kg
3 luni-1 an	70-80 ml/kg
Copil	70 ml/kg
Copil obez	60-65 ml/kg

- Estimare vol sange
 - EBV (estimated blood volume)
- Pierdere acceptabila sange
 - MABL (maximal allowable blood loss)

$$\text{MABL} = \text{EBV} \times (\text{Ht actual} - \text{Ht min acceptat}) / \text{Ht actual}$$

Produse de Sange

PRODUS	DOZA	EFFECT
ME	10-15 mL/kg	creste hemoglobina cu 2-3 g/dL
Trombocite	5-10 mL/kg	Cresc nr Trombocite cu 50,000 to 100,000/mm ³
Plasma Proaspata Congelata	10-15 mL/kg	Creste nivel factori cu 15%- 20%
Crioprecipitat	1-2 U	creste fibrinogen cu 60-100 mg/dL

Indicatii transfuzii sange

- **INDICATIE:**
 - Deficit simptomatic al capacitatii de transfer al oxigenului
 - Riscul de complicatii datorate oxigenarii neadecvate !!!
 - Neindicata Hb > 10g/dl
 - Indicata Hb < 6g/dl
- Alte situatii particulare
 - Boala pulmonara
 - Boala cianotica cord

Indicatii transfuzii sange

- Nou nascut / prematur
 - Hb bazala ↑
 - Hb F (afinitate crescuta pt O₂)
 - Volum sanguin 85 – 100 ml/kg
 - Risc
 - Hipovolemie
 - Hipotensiune
 - Acidoza
 - **Apnee (prematuroi, ex-prematuroi)**

Indicatii transfuzii sange

- Se prefera transfuzia (+) 5-10%
 - Sangerare postop...
 - Evita riscul expunerii la mai multe unitati sange

Volum ME=(Ht dorit-Ht prezent) x vol sanguin estimat/ Ht ME

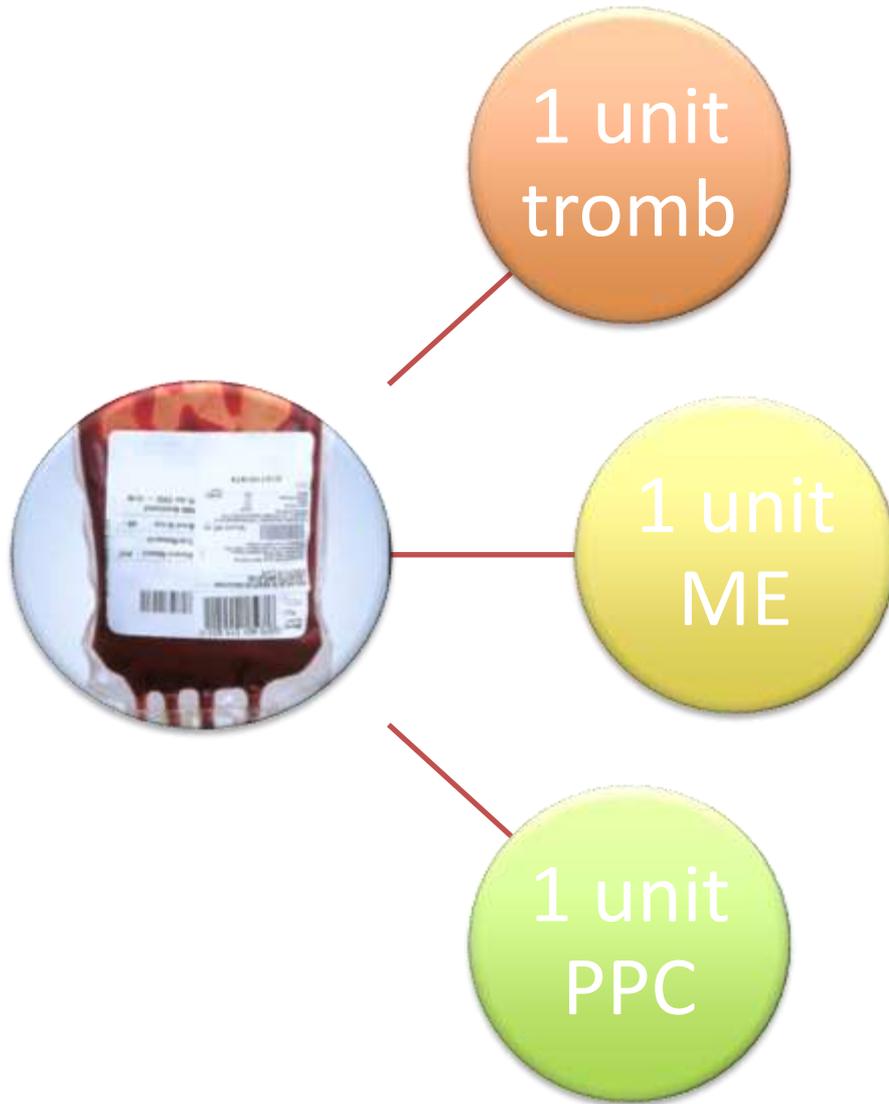
Masa eritrocitara de leucocitata

- Prevenirea reactiei febrile nehemolitice
- Prevenirea imunizarii HLA
 - Pt trat prelungit cu conc trombocitar(leucemie, limfom)
 - Pacient transplant
- Prevenirea infectiei CMV
 - Pac imunodeprimati
 - prematuri

Masa eritrocitara iradiata γ

- Risc reactie grefa-contra-gazda (limfocite T)
- Chemoterapie (leucemie, limfom, neuroblastom)
- Transplant maduva
- Nou nascut, exanguinotransfuzie, prematur
 - $< 1300g$, < 37 sapt gestatie
- Transfuzati cu trombocite (HLA compatibil)
- Transfuzati cu masa eritrocitara de la rude
 - (25% HLA compatibili)

Produse de sange

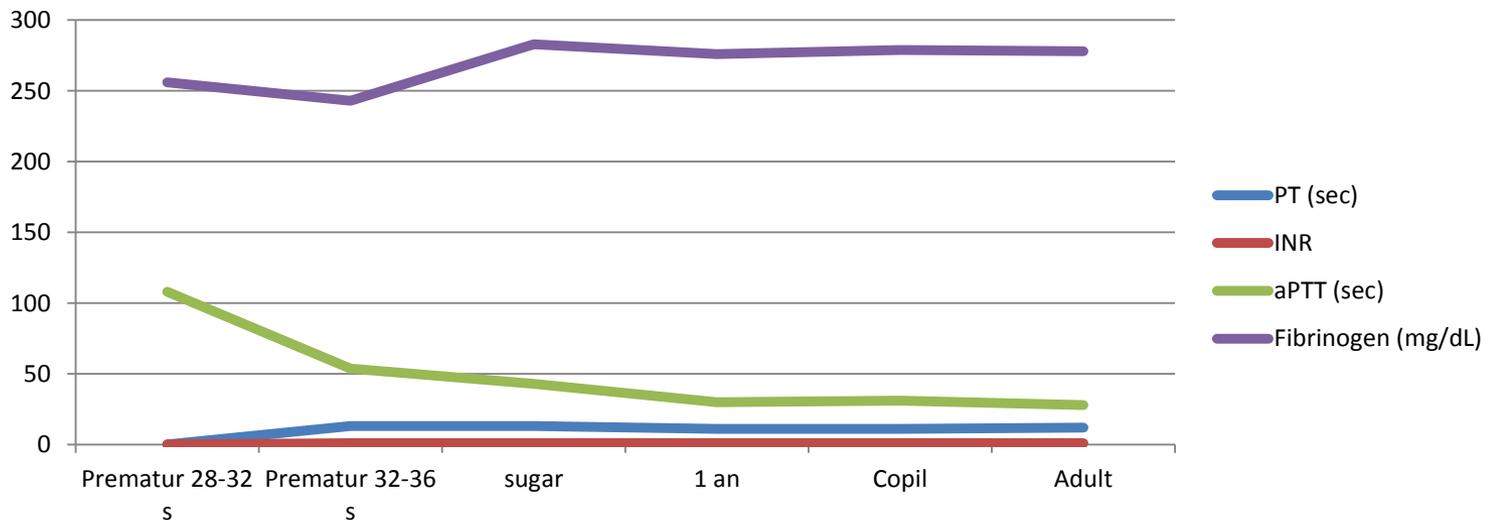


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Valori de laborator

	Prematur 28-32 s	Prematur 32-36 s	sugar	1 an	Copil	Adult
PT (sec)	15.4	13	13	11	11	12
INR	-	1	1	1	1	1
aPTT (sec)	108	53,6	42,9	30	31	28
Fibrinogen (mg/dL)	256	243	283	276	279	278



PPC Particularitati copil

- Regurile generale de transfuzie se aplica si la copil
 - Nou nascut
 - ↓ factori procoagulanti
 - ↓ factori anticoagulanti
 - Activ plachetara redusa vitro
 - ↑↑ vWf (subunitati multimerice - vWf)
- } Hemostaza f buna

Particularitati copil

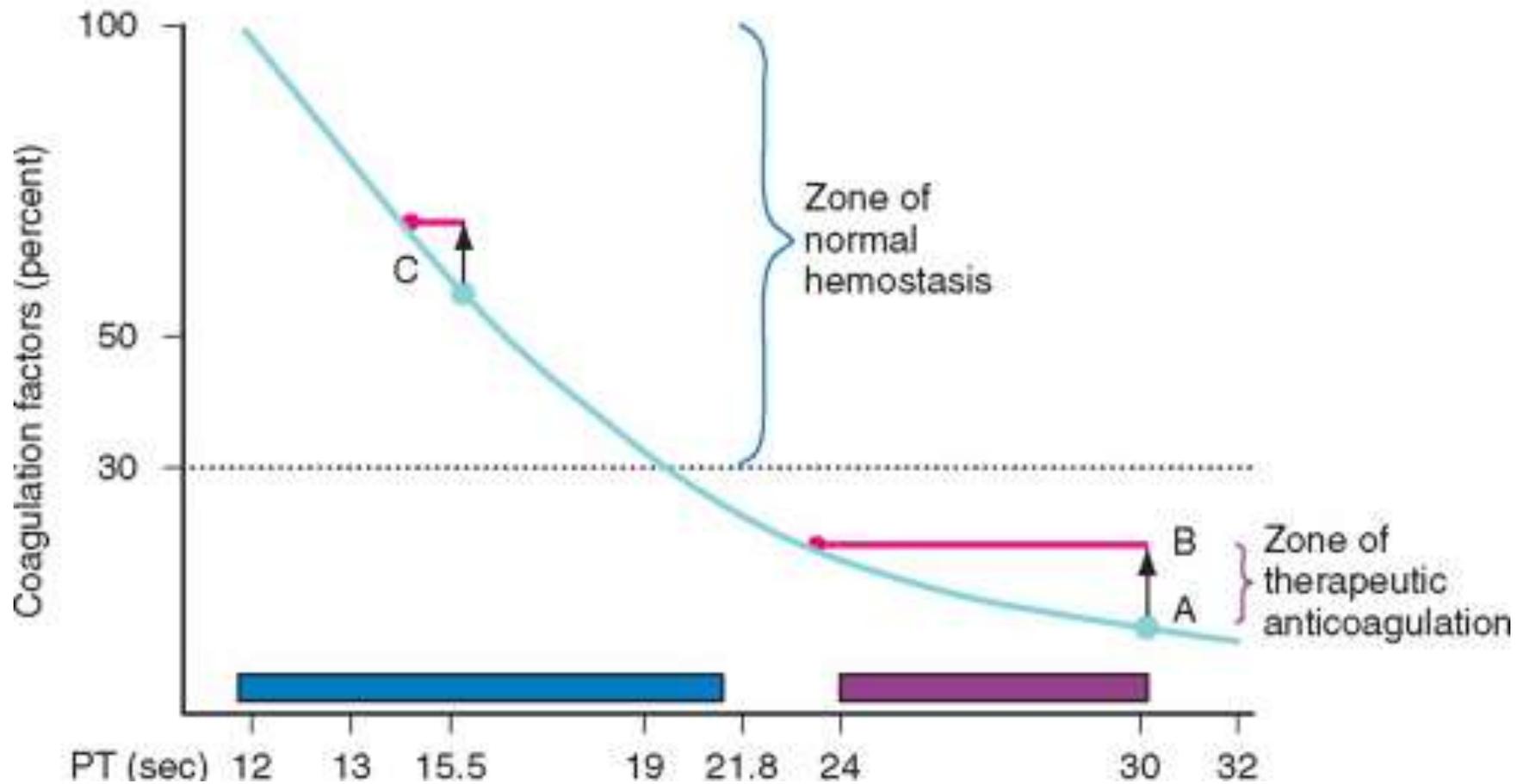
- Frecvent la copil
 - Exanguinotrasnuzia
 - ECMO
- Asemnator adultului
 - CEC
 - CID
 - Insuf hepatica, coagulopatii complexe
 - Deficit f V si f XI

PPC

- Indicatii ferme:
 - Inlocuirea factori de coagulare atunci cand factorul specific nu este disponibil
 - Reversia imediata a efectului warfarinei
 - CID
 - PTT (Purpura Trombotica Trombocitopenica)
 - Sangerare in panza aPTT si PT > 1,5 normal

Practice Guidelines for blood component therapy: A report by the American Society of Anesthesiologists Task Force on Blood Component Therapy. *Anesthesiology*. 1996 Mar;84(3):732-47.

Guidelines for the use of fresh frozen plasma. British Committee for Standards in Haematology, Working Party of the Blood Transfusion Task Force. *Transfus Med*. 1992 Mar;2(1):57-63.



Dzik WH, Stowell CP: Transfusion and coagulation issues in trauma. In Sheridan RL [ed]: *The Trauma Handbook of Massachusetts General Hospital*. Philadelphia, Lippincott Williams & Wilkins, 2004, p 139.

PPC

- Indicații relative (În prezența sângerării)
 - Transfuzie masivă
 - Boala hepatică
 - By pass cardiopulmonar
- Neindicat:
 - Hipovolemie
 - Plasma exchange
 - Suport nutrițional
 - Tratarea imunodeficienței

PPC

- F V
- F XI
- Proteina C
- Proteina S
- Plasminogen

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Crioprecipitat

- Prin topirea PPC la 4-10°C
 - Indepartarea supernatantului
 - Recongelare
- 20-50% f VIII (din 1 U PPC)
- Fibrinogen aprox 250 mg
- F XIII
- vWf
- Tratament:
 - Hemofilie A
 - Hipo/dis-fibrinogenemie
 - ↓ fibrinogen 80 mg/dl
 - F XIII
 - Boala v Willwbrand
 - Neresponsivi la desmopresina
 - Care sangereaza

Trombocite

- Din
 - Sange total (contin eritrocite)
 - Afereza (fara eritrociteRBC)
- Doza uzuala
 - 0,1 – 0,3 u/kg
 - 10 - 15 ml/kg
 - Crestere cu 30 – 90.000/mm³

Trombocite

- ABO compatibil.
- Compatibilitate Rh
 - Afereza nu este necesar
 - Sange total = necesar
- Necesar transfuzat trombocite
 - 10.000/mm³ suficient
 - Punctie lombara, punctie venoasa
 - previne sg spontana

Trombocite

- 30-50.000 / mm³ doar la
 - Semne sangerare
 - Chirurgie
 - Transfuzie masiva
 - Trombopatie
 - Medicatie (AINS), uremie
- 100.000 / mm³
 - Neurochirurgie, oftalmo, chirurgie ureche

Trombocite

- Adm profilactica = ineficienta
 - Trombocitopenie datorita distrugerii periferice

Screening sangerare

- Anamneza
- Anamneza
- Anamneza !!!
 - Personala
 - Familiala

Screening sangerare

- Sugari
 - Ombilic, vaccinuri, dentitie
- Copii > varsta mers
 - Cazaturi → vanatai, julituri
 - Epistaxis,
- Adolescenti
 - Sangerari gingivale, vanatai in locuri netraumatizate
 - menoragie
 - ≈ adulti...

Screening sangerare

- PT
 - II V VII X
 - Deficit vit K, warfarina, NU heparina
- aPTT
 - VIII IX XI
 - Heparina, inhibitor plasmatic (lupus anticoagulant)
- TT
 - Fibrinogen, heparina

Screening sangerare

- Amanarea interventiei
 - Istoric, anamneza
 - Locul operatiei
 - Urgenta
 - Risc sangerare
 - Teste laborator

Anemii hemolitice

- Sferocitoza
 - Defect de membrana celulara
 - Viata eritrocite 120 zile → cateva zile → liza
 - Anemie, icter, splenomegalie, trombocitopenie
 - Litiaza 21-63%
 - Splenectomie, colecistectomie

Anemii hemolitice

- Drepanocitoza, anemia falciforma, sickle cell anemia
 - Hb S
 - recesiva
- Ocluzii vasculare
- Sechestrare splenică
- Criza aplastică
- Hemoliză
- Pastrarea temperaturii
- Hemodilutie

Anemii hemolitice

- Deficit G-6 PD
 - Cel mai frecv deficit enzimatic la om
 - Recesiv cromosom x
 - Istoric

Anemii hemolitice

G-6-PD

- ***Antibiotics***
- Sulfonamides
- Co-trimoxazole (Bactrim, Septrin)
- Dapsone
- Chloramphenicol
- Nitrofurantoin
- Nalidixic acid
- ***Antimalarials***
- Chloroquine
- Hydroxychloroquine
- Primaquine
- Quinine
- Mepacrine
- ***Other Medications***
- Aspirin
- Phenacetin
- Sulfasalazine
- Methyldopa
- Vitamin C (large doses)
- Hydralazine
- Procainamide
- Quinidine
- ***Chemicals***
- Moth balls (naphthalene)
- Methylene blue
- ***Food***
- Fava (“broad”) beans

Anemii hemolitice

- Talasemie
 - Incarcare cu fier,
 - Splenomegalie
 - Colecistectomie, splenectomie
 - Acces vascular de lunga durata

Purpura trombocitopenica idiopatica

- PTI
- Autoimuna, autolimitata ~ 2 luni
- Trombocitopenie $<100.000/\text{mm}^3$
- Anticorpi anti-trombocite
- Corticoizi

- splenectomie

Tulburari coagulare

- vWf boala v Willebrand
 - vWf
 - Aderare plachetara
 - Transport f VIII
 - “Pseudohemofile” exceptie sangerare articulara
- Hemofilia A (f VIII), B(f IX), C (f XI)

Multumesc