Rare blood in Transfusion Service

Two points of view:

• „transfusion scarcity“
  – HFA- negative donors
  – combined homozygosity (= negativity for multiple common antigens)

• „laboratory rarity“
  – as previous and
  – LFA positive rbcs
  – Rbcs with variant and weak antigens
Rare donors in the Czech Republic

• **National Rare Donor Registry (1)**
  – in ÚHKT from 1963 (Dr. Kout) … as one of first worldwide (reports about such registries from USA and England)
  – Accepted as National Registry by Ministry of Health in 1965
  – From beginning to 1974 in “paper form“
  – 1974 transfer to computer form /“hall size“ computer in Pilsen, later in Prague
  – But there was only one “central computer“ and local users – Regional Blood Banks were supplied by printed lists

Rare donors in the Czech Republic

• **National Rare Donor Registry (2)**
  – 1986 Regional Centres of Transfusion Service in the Czech Republic were equipped by Apple computers
  – Database of Rare Donors Registry was transferred to the Apple system and in cooperation with Mathematics Faculty of Charles University specialized software AKTER a ARCHTEX for donor search and inter-center communication were created
  – Communication between Centres in the Czech Republic was through regularly sent updated disquettes
  – Transfusion Service in Slovakia did not have Apple system, the communication was therefore still in paper form
Rare donors in the Czech Republic

• National Rare Donor Registry(3)
  – 90-ies: Apple system not longer perspective – need to transfer the Registry to IBM compatible platform
  – again in cooperation with computer staff of MF UK transformation to the dBase format
  – Later in 90-ies new communication system in decentralised Transfusion Service was created – telephone-line based network TransNet
  – New software „Registr“ prepared in ÚHKT – with two branches:
    • Rare Donors
    • Donors with positive infectious markers

Rare donors in the Czech Republic

• National Rare Donor Registry(4)
• Actual problems:
  • In rapidly developed computer and communication environment is current system becoming obsolete
  • New hardware and software requirements
  • Communication will be through internet

• „Free market“ in information system services introduced new problem – Regional and Local Transfusion Centres are equipped with different software and „communication incompatibility“ must be solved
Rare donors in the Czech Republic

• Rare blood supply
  – the need of rare blood is evaluated in the National Blood Group Reference Laboratory in ÚHKT Prague
  – local centres with rare donors in their region are called to provide units
  – 2005 in the Central Military Hospital in Prague the Rare Blood Cryo-Program was started
  – „high-glycerol“ method is used and the Rare Blood CryoBank is now in the „filling“ period

Current rare blood availability:

  – National Registry:
    • Contact through Ref.Lab.in UHKT /pisacka@uhkt.cz/
    • Cca 5000 donors in the database with combined homozygosity for common antigens in all AB0 groups /predominantly in 0/ in population frequency 1% or less
    • Few HFA- /Co(a-),Yt(a-),Jr(a-),Vel-,K-,K(null),Fy(null)

  • CryoBank in the Central Military Hospital:
    • Contact through Ref.Lab.in UHKT /pisacka@uhkt.cz/
    • Few HFA negative units
    • the rarest are 4 Co(a-b-) units imported from Canada
    • Group 0 combined homozygotes reserve is in just beginning
Rare blood for laboratory use

- All kinds of „rare“ samples
- Rare rbc phenotypes
- Rare antibodies

- Maintained in the National Reference Laboratory for Immunohaematology in ÚHKT
- Obtained also from patient samples tested in the laboratory
- International exchange of rare samples through SCARF cooperation

Rare blood for laboratory use

- Storage:
  - rbcs: cryokonservation in liquid nitrogen in glucose/saccharose suspension (frozen drops, easy to handle with small amounts/

- antibodies – frozen in -20°C freezer
Rare blood supply

• Often local/regional supply insufficient

• International cooperation necessary

• Many thanks to Dr. Wagner and Blutspendedienst in Springe and to all other colleagues and also rare donors involved in supply of 8 units of Co(a-) blood which I am bringing on my return to Prague and next week will be used for a complicated cardiosurgery in an anti-Co(a) alloimmunized patient in Brno.