

Blood Conservation Strategies for Cardiopulmonary Bypass



Craig Vocelka, CCP
Chief, Perfusion Services
Division of Cardiothoracic Surgery
Department of Surgery
University of Washington
Seattle, Washington

h a e m a t o l o g y

Paradigm of the Dilemma

Not against blood transfusion

Life saving therapy

One of the few never studied by FDA/Gone through the approval process, yet approved

Never get IRB for prospective, randomized, blinded study

We know it saves lives, but at what cost – what else does it do?

By Definition.....

Giving blood products is organ transplantation

Should we treat this more as Tx and less like we are giving cough syrup?

Complications of Massive Transfusion

Storage bi-products

DIC

Hypothermia

Hypervolemic shock

Red Cells Storage Lesion Characteristics

Serotonin-30-900nmol/l

TNF alpha

Cytokines

Complement

Bradykinin

Average RBC Storage Age in Days

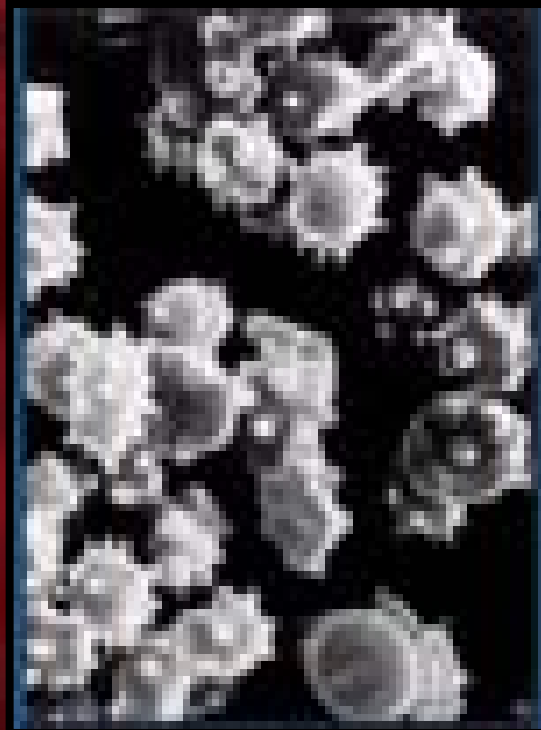


National Blood Data Resource Center, US Report, 2001

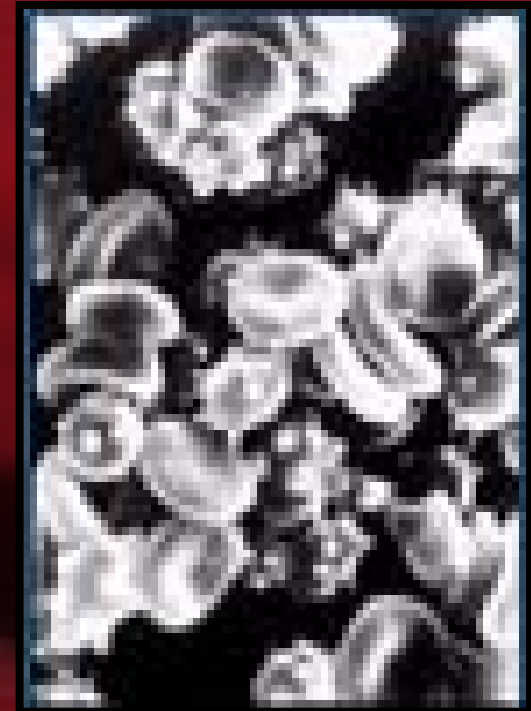
RBC Shape Change During Storage



Day 1



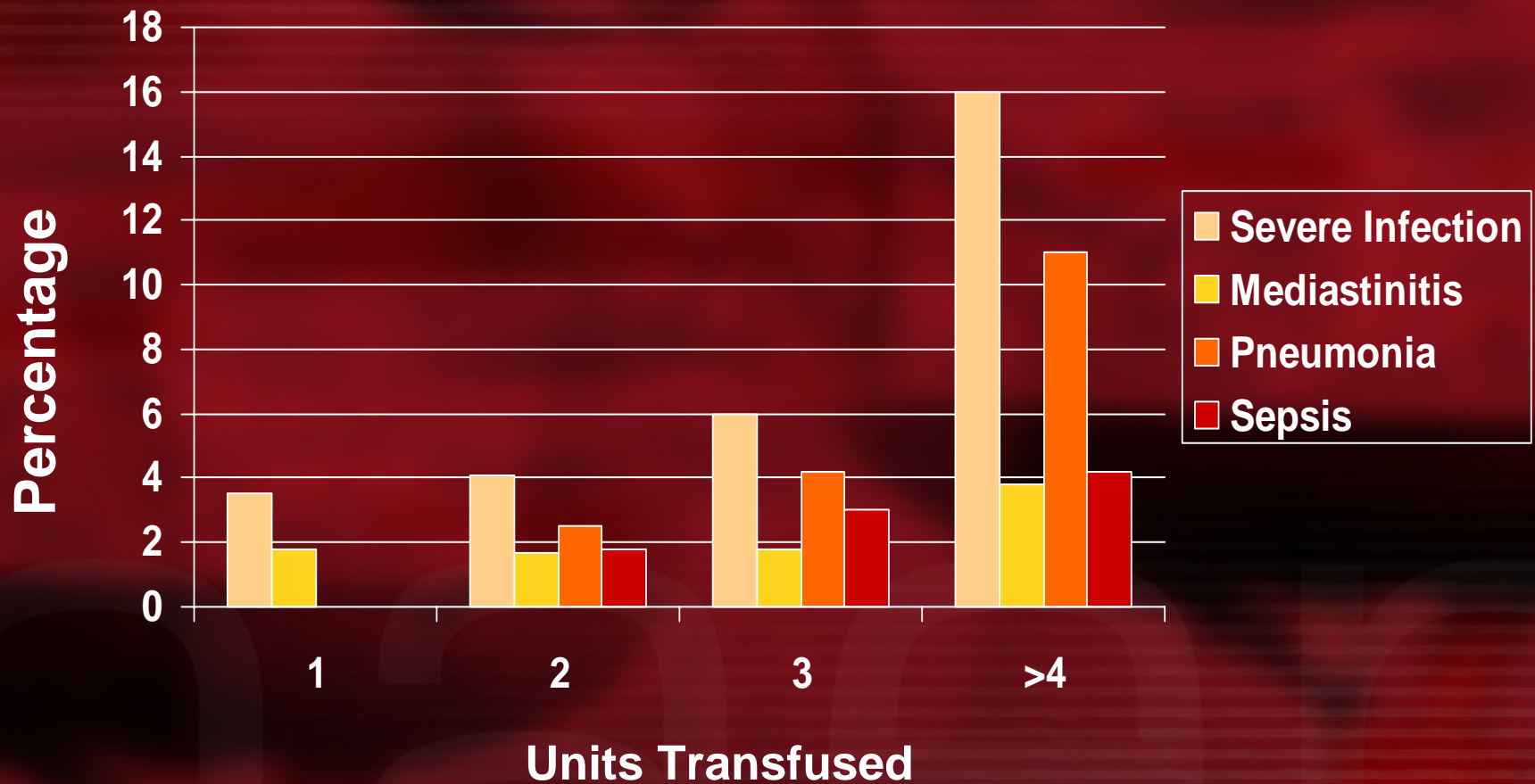
Day 21



Day 35

Hovav T et al. Transfusion 1999;39:277

Influence of Transfusion and Infection in Cardiac Surgery



Leal-Noval et al. Chest 2001;119:1461