

iTRANSFUSEFACTSHEET

all about blood

VOLUME 3, NUMBER 10

HOT TOPIC: THE AGE OF RED CELLS

SIMON BENSON

Why is this a hot topic?

There is currently a debate about whether the age of a unit of blood when transfused makes a difference to patient health. If it is proven that younger blood is superior, then the way the Blood Service and hospitals handle inventory may have to change a lot.

How long can blood be stored?

A unit of red cells can be stored for 42 days.

What happens to a unit of red cells as it gets older?

During storage red cells undergo numerous complex physical shape and chemical changes. Some, but not all, of these changes resolve a few hours after the cells are transfused. These changes are called the “red cell lesion”.

Do these changes matter?

The clinical impact is not known however new research evidence is giving us some clues:

● The case for Young Blood

Several small studies, looking at the age of blood patients received compared with clinical outcomes, suggest that patients receiving younger blood have less health problems than patients who received older blood. This may be important for patients with certain diseases or in certain age groups eg premature babies.

● The case for Older Blood

Other studies show no difference between clinical outcomes and the age of the red cells transfused. Large research projects which put together many studies called “systematic reviews” have not found any advantage in the using younger blood. Being able to store blood for a long time makes inventory management, especially in regional centres, much easier.

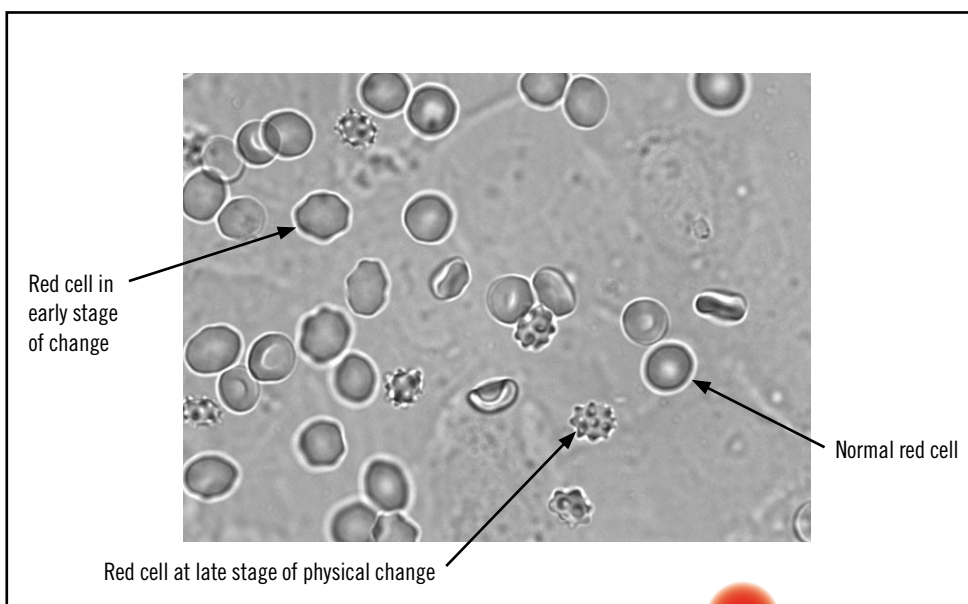


Figure 1: Day 42 stored red cells showing a normal red cell, and changes that can occur to red cell shape during storage. Photo by Dr Margaret Veale, R&D Division, Melbourne

● The verdict?

The jury is still out. None of the current studies are powerful enough to convince transfusion health professionals either way. It is not looking likely that young blood will be necessary for all patients but large studies are needed. Several of these are underway and we may get closer to an answer over the next couple of years.

What is the Blood Service doing about this “hot topic”?

Policy: The Blood Service is committed to providing the most appropriate blood for each patient. For some patients (eg premature babies), using younger blood is common practice. At the moment there are not good enough reasons to change the age of blood we supply or red cell shelf life.

PACKFACT

The average age of blood issued from the Blood Service is about 7–8 days.

Research: We are actively engaged in laboratory and clinical research to understand the changes to stored red cells and how the age of red cells may impact patients.

Clinical Practice: We are partners with health professionals to optimise inventory management and prescribing practice.

The information contained in this fact sheet is not intended to be medical or professional advice. The disclaimer found at transfusion.com.au applies to this fact sheet.

For more information visit
transfusion.com.au

 Australian Red Cross
BLOOD SERVICE