

Fever and blood transfusion - Guideline in norm of temperature (in transfusion)

Is fever a contraindication to transfusion?

The first contraindication is the absence of indication.

Is transfusion firmly indicated?

If so, we have to prescribe transfusion.

Why would fever be a contraindication of transfusion?

Fever could mask the rise of temperature due to the presence of bacteria in a blood bag.

To be considered as an infection related to transfusion, we consider that the temperature of patient has to increase about 2°C or be above 39°C.¹

If there are bacteria in the blood bag

When performing a blood transfusion we can fear the transmission of infectious agents, viruses or bacteria. And this because in blood transfusion, there can be sometimes a post prandial bacteremia in the donor's blood.² Usually this is well controlled but it may occur anyway (in France: 0,01/100 000 blood products).³ If there are bacteria in the blood bag, the patient may get a fever.

So fever is an alert

and the transfusion has to be immediately stopped in order to limit the infection. At the same time the blood bank shall be alerted to keep away (in quarantine) the other blood products from this donor (a don of blood gives 3 products Red cells, Platelets, Plasma). If the patient has a fever during the transfusion, we can think that there is a bacterial infection given by transfusion, but it could also be that the patient has an infection prior to transfusion.

So, by considering that fever is related to a previous infection

we can miss an infection due to transfusion. This is the reason why fever is so feared in transfusion.

For that reason, in France and probably in other countries, when a patient has a fever just before transfusion, the doctor or nurse in charge refuses to transfuse and sends back to the blood bank the blood products (red cells concentrates most of the time). The blood products are discarded.

What to do in case of a fever?

The patient has an anemia therefore he really needs blood transfusion.

Fever is an abnormal production of warmth which needs an important expense of energy and increases the needs in oxygen. Both will induce tachycardia.^{4,5}

Tachycardia will be more important as there is an anemia and as the oxygen transporter (hemoglobin) is scarce.

As there is an increase of needs in oxygen and a scarcity of

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transporter; it may trouble the myocardial balance between the needs and the inputs of oxygen. This is more important as the patient is older and if he has troubles of coronal vessels circulation and if he has had a myocardial infarction.⁴ So transfusion is particularly required and indicated in that case.

Problems

Fever before transfusion

If the fever is related to a previous infection: no action to do except an injection of paracetamol to make patient more comfortable. But when paracetamol is given to patient, it can occult any fever even the one which would come from an infection given by transfusion.

Fever rises up during transfusion

If the fever rises up during transfusion, we can do the same thing but the question will be the same.

Shivers:

Shivering may be an effect of fever but it can also be due to injection of a red cells bag which is at 4°C and insufficiently rewarmed before use. It is not a reliable symptom to decide stopping or not the transfusion. But shivers may also induce or increase tachycardia. As tachycardia requests more oxygen for the heart, it is better to make a transfusion.

Conclusion

Fever is not a contraindication to transfusion. On the contrary, when transfusion is perfectly indicated, in many situations this may be a stronger reason to transfuse. But the patient follow-up will be closer, and temperature monitored. The doctor has to be careful for prescription and he has to consider benefits/ risks balance at any time. Blood samples can however be sent for bacterial analyses.

This can prevent the destruction of blood products when a fever appears just before transfusion. This has two interests: A financial interest and an ethical one, as blood is rare and is provided by donors

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Conflicts of interest

The author reports no conflict of interest in this work.

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