



e-Network Forum

CALIFORNIA BLOOD BANK SOCIETY

"We help save lives of people who need blood"

Search CBBS Website

- About CBBS →
- How to Join
- e-Network Forum →
- Fast Breaking News →
- Contacts →
- CBBS Meetings →
- Education Fund
- Corporate Support →
- Jobs & Sale Listings →
- Useful Links →
- Site Help/Info →
- Member Area Login

HOME

Does tyramine remain in banked blood?

A **respected pathologist from an Historic University on the East Coast** writes:

We have a patient coming for **elective surgery** with **low but not zero risk of transfusion** (hysterectomy). She is **on isocarboxazid (Marplan®)**, an MAO inhibitor, and will **NOT be weaned off the drug at time of surgery**. In our anesthesiologist's preoperative consult interview, the patient **insisted that she must autodonate** because of **risk of tyramine** in banked blood. Her concern is that the donor of any allogeneic blood she might receive could have consumed cheese, chocolate, red wine, etc. just prior to donation. If there was tyramine in the blood she received, it could result in **massive catecholamine release during surgery**. The questions raised are whether any significant amount of tyramine makes its way into banked blood and if it remains there days or weeks later. Of course, the patient's **surgery is scheduled for 10 days from today**, so her window of opportunity for safe autologous donation is closing.

The following responses have been received.

ADDENDA Jan. 7, 2008

1. **Sunny Dzik of Massachusetts General Hospital** (attribution used with permission) writes:

Hello CBBS....

The current forum contains an urgent request regarding the risk of blood transfusion and a patient taking Marplan, a mono-amine oxidase inhibitor (MAO inhibitor).

Adverse reactions resulting from the interaction of MAO inhibitors and foods like red wine, chocolate, and aged cheese, have been known for many years. Despite the use of MAO inhibitors for many years, I am **aware of no reports that a blood transfusion could precipitate a hypertensive problem** in a patient taking an MAO inhibitor. I would expect the **ADDITIONAL risk (related to the medication) of an allogeneic transfusion in this patient to be negligible**.

Although the package insert for this medication makes no reference to any concern regarding catecholamine release related to transfusion, one notes that the **package insert recommends discontinuing the drug prior to elective surgery**. See excerpt below.

If this patient were in my hospital, I **would not change any strategies for transfusion based on the history of this medication**.

Excerpt from package insert:

Anesthetic Agents

Patients taking Marplan should not undergo elective surgery requiring general anesthesia. Also, they should not be given cocaine or local anesthesia containing sympathomimetic vasoconstrictors. The possible combined hypotensive effects of Marplan and spinal anesthesia should be kept in mind. Marplan should be discontinued at least 10 days before elective surgery.

2. A **respected transfusion expert from the Northeast** writes:

I am **not informed about the specific scientific issues and data**. However, since cheese consumption, MAO inhibitors and transfusion are each common to ubiquitous, and hypertensive

reactions to transfusion are very rare indeed, I think it's a reasonable guess that it would **rarely, if ever be an issue**. This is a **patient preference** issue rather than a clear-cut scientific or clinical indication for any particular therapy. So, the issue is whether autologous donation is a reasonable thing for her to ask for in terms of risk to her or expense to the system, and it is.

That said, **autologous donation is a reasonable strategy** for a variety of legitimate reasons for some surgeries, albeit not for low risk hysterectomies, (although, we do end up doing them because doctors keep requesting them).

Why not do normovolemic hemodilution at the time of surgery for 2 units instead?

Cheaper, less risk to the patient and convenient for both patient and care givers, and does not result in more anemia or iron deficiency than would no transfusion at all.

ADDENDA Jan. 9, 2008

3. **An anesthesiologist suggests that the use of blood salvage be considered**, so that the patient can receive her own autologous blood. According to the anesthesiologist, there is **no relative contraindication to using blood salvage in hysterectomy**. The cost can be staged in that a collection reservoir can be used to collect in case of need. Most likely, there won't be a need. The anesthesiologist comments "Even with my bloodiest surgeons, a hysterectomy is a 500 mL procedure. Thus, a blood salvage reservoir at \$25 is **much more cost effective** than a \$300 unit of predonated blood which will, most likely, be discarded."

4. **A respected medical director from a large research institute** writes:

If the donor ate chocolate, cheese, and red wine right before donating, the **amount of tyramine in the 15 mL of plasma in an additive-stored unit would be clinically negligible**.

If there was a real risk, chances are that **hypertensive reactions would have been reported 30+ years ago**, when MAOI use was more common, red cells were stored in their own plasma rather than in additive solution, and autologous donation (pre-AIDS) was rare.

She adds that she is surprised that MAOI's are still commonly prescribed, given their side-effect profile.

Please submit comments to the [e-Network Forum](#).

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Addenda: Jan. 7 & 9, 2008

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