

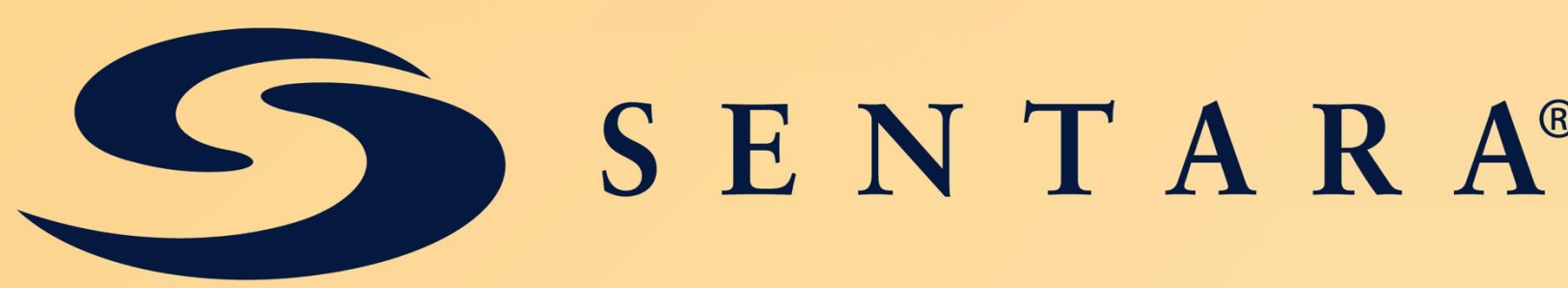


Understanding Best Practices For Medicating to Prevent Allergic and Febrile Non-Hemolytic Transfusion Reactions

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Background

- The most common non-hemolytic transfusion reactions are allergic and febrile.
- Allergic reactions include urticaria or hives, puritis, wheezing, dyspnea, hypotension, tachycardia, and shock.
- Febrile reactions occur with either 1) a rise in temperature of greater than 1 degree Celcius or 2 degrees Farrenehit above baseline, or 2) rigors or chills. Some patients experience all of these symptoms.
- The use of acetaminophen and diphenhydramine to prevent acute blood transfusion adverse reaction is estimated to be >50% nationwide.
- Acute non-hemolytic transfusion reactions account for 38% of all reactions, even when premedication is used.
- At Sentara Martha Jefferson Hospital (SMJH), all infused blood is pre-filtered and most (>90%) SMJH physicians do not premedicate patients before a transfusion.
- Despite controversy, some physicians continue to prescribe premedications despite demonstrated lack of utility (Figure 1).

Figure 1: Transfusions of Packed Red Blood Cells with and without Premedication from January 2015 - January 2016 (n =522 units)

Use of Premedication	Reactions (Percent)	Reaction Type
Yes (n=477)	1 (0.2%)	Fever
No (n=45 units)	2 (0.4%)	Uticaria

Purpose

The purpose of this literature review was to determine if significant evidence exists that supports premedicating with acetaminophen and diphenhydramine prior to a transfusion to prevent Non Hemolytic Transfusion Reactions (NHTRs).

Method

Sentara Healthcare Library services were utilized to collect articles using key words:

- ❖ premedication
- ❖ blood transfusions
- ❖ transfusion reactions

Article selection criteria included randomized controlled trials (RCTs) assessing the effectiveness of premedications for the prevention of NHTR.

Results

- Only 2 RCTs were found that fit our search criteria.
- One prospective observational survey and a published manuscript were also found.
- The two RCTs did not demonstrate significant difference in the overall incidence of non-hemolytic transfusion reactions between patients who were premedicated with acetaminophen and diphenhydramine and those in the placebo group.
- On e of the RCTs used post storage leukoreduction and their study showed that febrile NHTR were reduced with acetaminophen (Figure 2).
- A series of surveys completed at five universities revealed that the implementation of standardized premedication guidelines and the consequent marked reduction in premedications had little effect on reaction rates.

Nursing Implications

- More research is needed to effectively demonstrate the efficacy of premedications in preventing NHTRs.
- ❖ A larger scale, prospective, randomized trial would be ideal.
 - One limitation of the current literature is that the effect of premedications on reaction severity has not been analyzed, even if they did not affect the incidence.
 - The use of routine prophylaxis with premedications requires re-examination in the light of the low reaction rates reported at many institutions, including SMJH, even when premedications were not prescribed.
 - Based on the evidence on the 2 RCTs, we need to encourage providers to consider the evidence about the use of acetaminophen and diphenhydramine and reevaluate their use as standard practice for a blood transfusion.
 - These medications have potential toxicity, particularly in ill populations, and in the studies to date, they have failed to prevent transfusion reactions.



References available upon request from Jessica Cooper:
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