



# Pumping Iron in the Preoperative Period: Is It Beneficial in Reducing Blood Transfusions?

Patel, C., Akhtar, A., Cao, H., Fournier, D., Fraser, George, M., Knippel, S., Laury, T., & Correa, A.  
 The University of Texas MD Anderson Cancer Center  
 Department of Thoracic and Cardiovascular Surgery Quality Improvement Committee

## Introduction

Iron deficiency is the most common nutritional deficiency in the world and affects approximately 2 billion people. Iron deficiency is associated with chronic conditions such as cancer, inflammatory bowel disease, chronic kidney disease, and chronic heart failure and the most common cause of anemia worldwide.

## Background

A critical shortage of blood products exists, requiring novel strategies to reduce the need for perioperative blood transfusions. Our department evaluated the potential impact of providing parenteral iron supplementation to all oncology patients undergoing a thoracic surgical procedure, who were found to be anemic on preoperative work-up.

## Methods

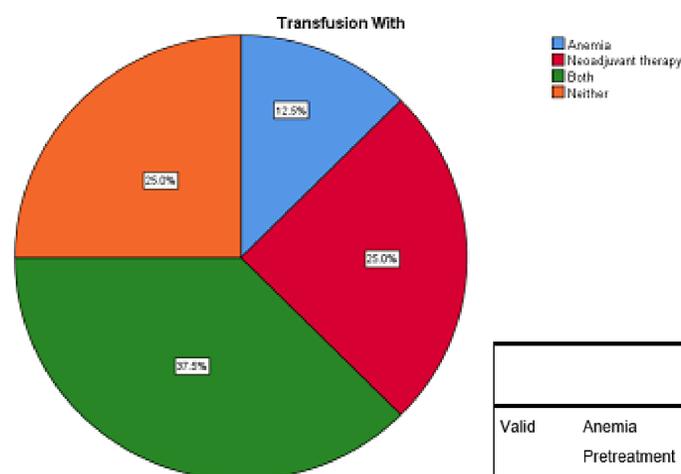
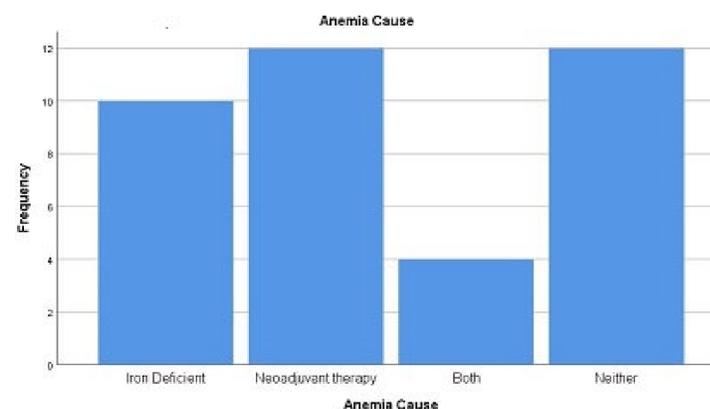
We examined 100 consecutive patients with a cancer diagnosis undergoing a planned thoracic surgical procedure. All patients were screened for preoperative anemia via a complete blood count with differential and iron studies within 30 days of the scheduled procedure. Data were recorded for the number of patients who received a perioperative blood transfusion and compared to their pre-existing anemia status.



## Results

Out of 100 patients reviewed, 38 were found to have anemia on preoperative laboratory values. Ten out of 38 patients were iron deficient. Out of 100 patients reviewed, eight received a blood transfusion during the perioperative period. Of those receiving a transfusion, only three were anemic at baseline with two being iron deficient, resulting in a mere 2% incidence of transfusion with pre-existing iron deficiency anemia.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Iron Deficient	10	10.0	26.3	26.3
	Neoadjuvant therapy	12	12.0	31.6	57.9
	Both	4	4.0	10.5	68.4
	Neither	12	12.0	31.6	100.0
	Total	38	38.0	100.0	
Missing	System	62	62.0		
	Total	100	100.0		



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Anemia	1	1.0	12.5	12.5
	Pretreatment	2	2.0	25.0	37.5
	Both	3	3.0	37.5	75.0
	Neither	2	2.0	25.0	100.0
	Total	8	8.0	100.0	
Missing	System	92	92.0		
	Total	100	100.0		



## Discussion

Preoperative anemia was not found to play a key role in the need for perioperative transfusions. For the patients who were anemic at baseline, iron deficiency was just one of many potential causes. Patient histories included other known causes of anemia such as neoadjuvant treatment with chemotherapy, radiation therapy, or immunotherapy within the previous three months. Further research should be considered to explore these and additional etiologies that may be more amenable to mitigation strategies.

## Conclusion

Anemia in oncology patients is multifactorial. Based on our data, the use of preoperative parenteral iron supplementation would only benefit a small percentage of patients undergoing thoracic surgery and therefore is not a viable strategy for reducing perioperative blood transfusions.

## References

