

period. 8-12 mg/kg of ferumoxytol was given over 15 minutes followed by 1 hour of observation. One patient received 16 infusions and was excluded from the analysis of response to therapy. There was a significant increase in hemoglobin concentration of  $1.77 \pm 1.44$  mg/dL (median = 1.50) within the first 2 weeks postinfusion and an increase of  $2.08 \pm 1.73$  mg/dL (median = 2.10) at 4 weeks postinfusion ( $p < 0.001$ ). Serum iron increased by  $37.65 \pm 32.85$  mcg/dL ( $p = 0.002$ ) and  $22.07 \pm 29.17$  mcg/dL ( $p < 0.001$ ) at week two and week four respectively. Iron saturation and ferritin also showed a significant increase ( $p < 0.001$  and  $p = 0.004$ ) within this period. Iron binding capacity decreased by  $-46.35 \pm 51.47$  mcg/dL ( $p = 0.002$ ) and  $-37.07 \pm 71.47$  mcg/dL ( $p = 0.01$ ) by the second and fourth weeks respectively postinfusion. There was no significant change in WBC, reticulocyte, and platelet counts. Patients showed no major changes in systolic blood pressure during and postinfusion but about 50% of patients showed a >10% drop in diastolic blood pressure which was not sustained nor statistically significant. No adverse effects were noted. **Conclusion:** Our limited data suggest that ferumoxytol is effective in children with IDA associated with GI disorders with no observed adverse effects.

**References**

- 1 World Health Organization. global anemia prevalence and number of individuals affected. Retrieved February 24, 2014 from [http://www.who.int/vmnis/anaemia/prevalence/summary/anaemia\\_data\\_status\\_t2/en/](http://www.who.int/vmnis/anaemia/prevalence/summary/anaemia_data_status_t2/en/)
- 2 Goldberg ND. Iron deficiency anemia in patients with inflammatory bowel disease. Clin Exp Gastroenterol 2013 Jun 4;6:61-70.
- 3 Warsh S, Byrnes J. Emerging causes of iron deficiency anemia refractory to oral iron supplementation. World J Gastrointest Pharmacol Ther 2013 Aug;4(3):49-53.

[SABM-14]

**Health and Economic Consequences of Controlled versus Uncontrolled Surgical Bleeding in Patients Treated with Hemostatic Agents: A Retrospective Analysis of the Premier Perspective Database**

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**Background:** Despite the use of hemostatic agents, bleeding complications occur in close to one-third of surgeries and have consequences such as increased transfusions and mortality. The objective of this study was to compare hospital resource use and costs between patients with and without uncontrolled bleeding who underwent surgical procedures in which hemostatic agents were used. **Methods:** A U.S. retrospective analysis using Premier Perspective Database was conducted to assess healthcare resource use and costs. Hospital discharges with admission dates in 2012 were used to identify patients treated with hemostatic agents during eight surgery types (cardiac revascularization, cardiac valve, cholecystectomy, cystectomy, pancreatic, partial hepatic resection, pulmonary, and radical

abdominal hysterectomy). Patients were included if they were ≥18 years, had an inpatient hospitalization with one of the eight surgeries, and received a hemostatic agent on the day of surgery. Patients were stratified by procedure and presence or absence of major bleeding despite hemostat use. Major bleeding events were identified by ICD-9-CM diagnosis and procedure codes that indicated hemorrhage/hematoma, interventions to control bleeding, or transfusion use. The primary outcomes were all-cause costs during hospitalization, cost of hemostatic agents, length of stay (LOS), reoperation, and potential surgery-related complications such as infection and ventilator use. Patient demographics, payment sources, and admitting hospital characteristics were evaluated. Chi-square or t-tests were used to test for statistical significance. Multivariate analyses were conducted to compare all-cause costs and LOS between patients with and without uncontrolled bleeding, adjusting for baseline variables using analysis of covariance (ANCOVA). **Results:** Among 25,048 procedures, 14,251 major bleeding events were recorded. Despite treatment with hemostatic agents, major bleeding occurred in 32-68% of cases, depending on procedure type. After adjusting for baseline characteristics, both all-cause costs and LOS were significantly higher in patients with uncontrolled bleeding despite hemostat use vs. those with controlled bleeding (Table 1). The cost of hemostatic agents was significantly greater in the uncontrolled bleeding cohort ( $p < 0.01$ ) for all surgery types except cystectomy and pancreatic surgery. Reoperation and mortality rates were significantly higher in the uncontrolled bleeding cohort in all surgical procedures except cystectomy and radical hysterectomy. **Conclusions:** Uncontrolled intraoperative bleeding despite the use of hemostatic agents is prevalent and associated with significantly higher costs, longer hospitalization, and higher rates of reoperation and mortality across surgical procedures compared to controlled bleeding. There is therefore an unmet need for newer agents that can more effectively control bleeding, improve outcomes, and reduce hospital resource use.

[SABM-15]

**Blood Density Is Equal to Water Density**

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**Objective:** Intraoperative blood loss is estimated following virtually every operation. This is usually accomplished with visual estimation by the operating surgeon; a method which is notoriously inaccurate. Accurate determination of blood lost may help minimize the need for transfusion by avoiding an overestimation of blood loss. The measurement of intraoperative blood loss can be accomplished with a simple gravimetric method performed by weighing surgical sponges before and after use. This method is based upon the assumption that 1 mL of blood is equivalent to 1 g in weight. This study was conducted to validate the assumption that the density of blood is equivalent to water and to investigate any correlation of blood density with hematocrit. **Design:** Validation study. **Sample:** Eighteen blood samples from adult male Sprague Dawley rats and 18 distilled water controls. **Procedures:** Fifty microliters of blood was collected with a calibrated

**TABLE 1. Adjusted all-cause costs and adjusted hospital LOS for controlled versus uncontrolled bleeding in patients treated with hemostatic agents, stratified by surgical procedure.**

	Adjusted All-Cause Cost			Adjusted Length of Stay (days)		
	Bleeding Not Controlled Despite HA Use	Bleeding Controlled with HA	P Value	Bleeding Not Controlled Despite HA Use	Bleeding Controlled with HA	P Value
Cardiac Revascularization	\$44,198	\$35,288	<0.001	7.7	5.9	<0.001
Cardiac Valve Surgery	\$60,531	\$47,245	<0.001	9.7	7.2	<0.001
Cholecystectomy	\$29,101	\$17,483	<0.001	8.4	5.2	<0.001
Cystectomy	\$41,708	\$27,551	0.006	12.5	8.8	<0.001
Pancreatic Surgery	\$58,853	\$37,039	<0.001	16.2	10.8	<0.001
Partial Hepatic Resection	\$43,649	\$20,535	<0.001	9.8	5.6	<0.001
Pulmonary Surgery	\$40,416	\$24,266	<0.001	11.3	7.1	<0.001
Radical Abdominal Hysterectomy	\$23,266	\$14,929	<0.001	6.8	4.3	<0.001

**Conclusions:** Uncontrolled intraoperative bleeding despite the use of hemostatic agents is prevalent and is associated with significantly higher costs, longer hospitalization, and higher rates of reoperation and mortality across surgical procedures compared to bleeding that is controlled. There is therefore an unmet need for newer haemostatic agents that can more effectively control bleeding, improve patient outcomes, and subsequently reduce hospital resource use.