ABSTRACT

Study was sponsored by Watson Pharmaceuticals

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Notes:

IDENTIFYING THE SAFETY OF LOW MOLECULAR WEIGHT (LMW) IRON DEXTRAN (InFed®) ADMINISTRATION IN A BLOOD MANAGEMENT PROGRAM TREATING VARIOUS DISEASE STATES

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Purpose:
A retrospective review of 601 patients enrolled in a blood management program over a five year period was conducted to assess the safety and efficacy of intravenous (IV) low molecular weight (LMW) iron dextran (InFed®) and to identify predictors of decreased transfusion requirements by disease state.

Methods:
Charts of patients who received erythropoietin agents and/or IV iron as part of the blood management intervention to prevent the need for blood transfusion since April of 2002 were reviewed. Data collected included admitting diagnosis, baseline hemoglobin (Hgb), iron indices, units of blood transfused, erythropoietin (EPO) dose, IV iron dose, length of hospital stay (LOS) and adverse reactions to IV iron.

Results:
From these 601 patients the most common diagnoses were: urgent surgery, colon cancer, anemia in patients scheduled for general surgery (gen. surg)/ObGyn, C-section and total abdominal hysterectomy (TAH). A total of 149 patients received LMW iron (InFed®) and had one serious adverse reaction, 143 patients received high molecular weight (HMW) iron (Dexferrum®) and had two serious reactions and 169 patients received iron sucrose (Venofer®) and had no serious reactions. When assessing the patients for predictors of decreased transfusions it was noted that 416 (69%) patients did not need a transfusion. These patients had a mean pre-operative Hgb of 11.53 g/dl vs. a Hgb of 10.85 g/dl for those patients who did need transfusions (p=0.001). Patients who were Jehovah’s Witnesses (JW) were excluded from subsequent analyses and were evaluated separately. In elective surgery patients, those who did not need a transfusion had a mean baseline Hgb of 12.9 g/dl vs. a Hgb of 11.53 g/dl for those patients who did need transfusions (p=0.012). The patient transfusion record, iron laboratory results, iron dosing, baseline Hgb, erythropoietin (EPO) dose and length of stay (LOS) also varied when comparing the various admitting diagnoses for the elective surgery patients.

Conclusions:
Patient transfusion needs varied based upon diagnosis, iron dosing, iron labs, baseline Hgb and erythropoietin dosing. The administration of LMW iron dextran in this blood management program is a safe, convenient and cost effective first line therapy in many patients. The primary advantages would be its relative safety, moderate cost and dosing flexibility. This institution plans to use this information to further improve disease specific blood management interventions and guidelines.
Mercy Medical’s current blood management guidelines have been shown to effectively decrease patient’s hospital LOS. Their outcomes were compared to the 262 non-JW elective surgery patients based upon this experience.

Mercy Medical Hospital has a defined transfusion trigger of 7.0 g/dl and this is used in elective surgery, admission Hgb was taken 3-4 weeks prior to surgery, and general surgical/ObGyn procedures were grouped together due to the primary diagnosis of urgency. As always, if a patient has a sensitivity to iron dextran the alternative non-dextran was administered. A patient is considered to be a Jehovah’s Witness if they refuse blood products for religious reasons. There were no JW patients included.

As we look at each lab we need to remember the limitations in each. For example, serum ferritin is a non-specific acute phase reactant in addition to being a marker of iron stores. This can pose significant challenges when interpreting iron values. In our experience, approximately 15% of all untransfused patients have elevated serum ferritin levels (normal is <100 ng/mL).

As we look at the data in the figure 5, when using the ferritin value, the patients who received transfusions also had a longer LOS (p<0.001). The patients who received IV iron received more EPO (p=0.002). Other statistical analysis were done on all three labs and only the restoration of serum ferritin and iron saturation are significant.

As we look at the data in the figure 6, we see that the amount of iron in g per patient for these patients is lower than the amount of iron in g per patient for our standard patients. This is because IV iron was not given to our standard patients. The amount ofIron in g per patient for IV iron patients is higher than the amount of iron in g per patient for any other patient. The amount of iron in g per patient for the IV iron patients is higher than the amount of iron in g per patient for any other patients. The amount of iron in g per patient for the IV iron patients is higher than the amount of iron in g per patient for any other patients. The amount of iron in g per patient for the IV iron patients is higher than the amount of iron in g per patient for any other patients.

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