Stopping anemia drug may be wiser than reducing dose to normalize hemoglobin levels

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Discontinuing the anemia drug epoetin may be more effective than reducing the dose for normalizing potentially dangerous high hemoglobin levels in hemodialysis patients, according to a study appearing in an upcoming issue of the *Clinical Journal of the American Society Nephrology* (CJASN). The results provide useful information about the balance required between administering epoetin and achieving target hemoglobin levels.

Anemia is a common complication of chronic kidney disease. Treatment often involves epoetin to boost levels of hemoglobin, the component of blood that transports oxygen throughout the body. Unfortunately, epoetin can increase the risk of heart-related complications and death when used to raise kidney disease patients' hemoglobin levels to what is considered normal in the general population. In addition, kidney disease patients often experience significant fluctuations in hemoglobin levels outside of the recommended range (10 g/dl to 12 g/dl) when using epoetin, which may have a negative impact on health.

Little information is available on the effects of reducing or discontinuing epoetin in patients who develop high hemoglobin levels. To investigate, Daniel Weiner, MD, Jose Calvo, MD (Tufts Medical Center) and their colleagues measured hemoglobin levels over a two month period in 2,789 dialysis patients who discontinued epoetin and 754 dialysis patients who reduced their epoetin dose by 20%-30% after developing high hemoglobin levels (13 g/dl or greater). They also explored individual patient characteristics associated with more precipitous drops

in hemoglobin level.

Within two months, more patients who discontinued epoetin dropped below 11 g/dl (21.5% vs 10.1%) and 10 g/dl (7.2% vs 3.6%) compared with patients who reduced their epoetin dose. Reducing epoetin was associated with more frequent lowest hemoglobin levels that remained above12 g/dl (31.1% vs 62.8% of patients), a level higher than that recommended by the FDA.

While discontinuation was associated with a higher likelihood of dropping to a hemoglobin level below 10 g/dl, this occurred in relatively few individuals. Factors associated with a drop in hemoglobin level to below 10 g/dl included higher baseline epoetin dose and elevated blood markers of inflammation. After adjusting for these factors, patients who discontinued epoetin were 1.91 times more likely to have a lowest hemoglobin level below 10 g/dl. In contrast, patients who reduced epoetin were 4.41 times as likely to have a lowest hemoglobin level above 12 g/dl.

These results indicate that once a patient reaches a hemoglobin level of 13 g/dl or higher, discontinuing epoetin is more likely to lower the hemoglobin level to within the recommended range compared with reducing the dose of epoetin. However, discontinuing epoetin also increases the patient's risk of developing a lower-than-recommended hemoglobin level, while reducing epoetin is associated with significantly increased time at a higher-than-recommended hemoglobin level.

The major limitations of the study were the use of administrative data in a retrospective fashion, and the lack of hard outcome data, including mortality.

More information: The article, entitled "Nadir Hemoglobin Levels after Discontinuation of Epoetin in Hemodialysis Patients" will appear

online on July 22, 2010, doi:10.2215/CJN.02650310