

Iron dosing regimens affect dialysis patients' infection risk

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While intravenous iron is critical for maintaining the health of many dialysis patients, administering large doses over a short period of time increases patients' risk of developing serious infections, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)*. Smaller doses given for a longer period of time appears to be much safer.

[Dialysis patients](#) often develop anemia, or low levels of [red blood cells](#), and must receive intravenous treatments of [iron](#) to correct the condition. Unfortunately, intravenous iron may promote [bacterial growth](#) and impair the [immune system](#), and treated patients face an increased risk of infection. No large studies have looked at how different iron dosing regimens might influence this risk.

To investigate, Maurice Alan Brookhart, PhD (University of North Carolina, Chapel Hill) and his colleagues assessed the safety of commonly used intravenous iron dosing practices in dialysis patients with respect to infection risk. In particular, they compared the safety of providing a large amount of iron over a short period of time (called bolus or repletion dosing) vs providing smaller, less frequent administrations (called maintenance dosing). The researchers analyzed clinical information from 117,050 patients followed for three months. Of these, 12% received bolus dosing, 49% received maintenance dosing, and 38% received no iron.

Among the major findings:

- Bolus dosing was associated with increased risks of serious infection and infection-related death. (There were 25 additional infections per 1000 patient-years compared with maintenance dosing.)
- These risks were particularly high among patients who used a [catheter](#) for dialysis (73 additional infections per 1000 patient-

years) and for those with a history of recent infection (57 additional infections per 1000 patient-years).

- There was no evidence of infection risk associated with maintenance dosing compared with no iron administration.

"Although administration of iron is a necessary to manage [anemia](#) in hemodialysis patients, our results suggest that providing a large amount of iron over a short time may increase the risk of serious infections in dialysis patients. Smaller, less frequent doses of iron appear to be safer," said Dr. Brookhart.

In an accompanying editorial, Connie Rhee, MD, and Kamyar Kalantar-Zadeh, MD, PhD (University of California Irvine School of Medicine) noted that because the study is an observational one, more research is needed. "To date no randomized controlled studies have been conducted to substantiate the risk of increased infection or death as a result of IV iron therapy in dialysis patients," they wrote.

More information: The article, entitled "Intravenous Iron Supplementation Practices and Infection Risk in Hemodialysis Patients," will appear online on June 20, 2013, [doi: 10.1681/ASN.2012121164](https://doi.org/10.1681/ASN.2012121164)

The editorial, entitled "Is Iron Maintenance Therapy Better Than Load and Hold?" will appear online on June 20, 2013, [doi: 10.1681/ASN.2013050456](https://doi.org/10.1681/ASN.2013050456)

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