ANEMIA OF CHRONIC DISEASE

To the Editor:

I enjoyed reading the review article on anemia of chronic disease (ACD) that appeared in the October 1, 1992 issue of Blood.\(^1\) I agree that the name of this type of anemia is a misnomer and misleading. I prefer to call it "anemia of defective iron reutilization." Iron utilization is the iron that appears in red blood cells (RBC) after intravenous (IV) injection of radioactive inorganic iron into the circulation, whereas iron reutilization is the iron that appears in the RBC after IV injection of organic radioactive iron compounds such as hemooglobin. We and others have shown that iron utilization is normal, but iron reutilization is defective in this type of anemia.\(^2,3\) The studies quoted in the review\(^4,5\) showing normal release of iron from the reticuloendothelial system (RES) to the circulating transferrin (Tf) of patients with rheumatoid arthritis are not convincing to me because the total iron released in the circulation from the RES was not determined by measurement of the actual blood volume. In addition, patients with rheumatoid arthritis are notorious for having many causes of their anemia and one has to be very selective in studying ACD in this group of patients.

The fact that patients with ACD respond to recombinant erythropoietin (EPO) does not rule out the defective release mechanism of iron from the RES in ACD. EPO in the dosage used may also act on the RES and enhance the release of iron. We have shown that testosterone, known to act on RBC precursors in patients with aplastic anemia, also acts on the RES to increase the release of iron in vivo and in vitro. The anemia and iron reutilization of patients with primary defective iron reutilization were corrected after testosterone therapy.\(^6\) Testosterone added in vitro to cultures of macrophages containing\(^7\)Fe-tagged RBC increased the release of iron to the media, and when the male hormone was injected into mice, it expanded the Tf pool in their macrophages, which I believe is a preliminary step for the release of iron from these cells.\(^8\) I think these studies could be repeated using EPO instead of testosterone to settle this point.

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REFERENCES

Anemia of chronic disease [letter; comment]

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