Although in vivo evaluation of blood rheology is difficult, in vitro data suggest that optimal oxygen delivery (balancing oxygen delivery and blood viscosity) occurs at hematocrit levels between 38% to 51% (9).

Importantly, different therapies addressing the same target may be associated with a different balance of risks and benefits, and therapies may exert therapeutic or harmful effects through pathways unrelated to their presumed mechanisms. As Dr. Kovacic points out and as we stated in our review, emerging data suggest a role for erythropoietin in cardioprotection from ischemic injury. Such data raises the possibility that erythropoietin analogs may have beneficial effects in cardiovascular disease that are distinct from their effects on erythropoiesis. Conversely, recently published data suggest that red blood cell transfusions are associated with an increase of ischemic events in patients with acute coronary syndromes, possibly due to lack of ability of stored erythrocytes to effectively donate nitric oxide in the microvasculature (10). Given the uncertain balance of risks and benefits of therapy with erythropoietin analogs in patients with heart failure, the clinical equipoise required to proceed with carefully controlled, appropriately powered randomized trials clearly exists. As we stated in our conclusions, we continue to believe "a mixture of optimism and caution" is the appropriate stance until results from such trials are available.

**REFERENCES**


### Conflation of Empiric and Nonempiric Truths in Cardiovascular Guidelines

The newly published guidelines for the treatment of ST-elevation myocardial infarction (STEMI) use the more detailed definitions of classes of recommendations and levels of evidence as shown in Table 1 of the report (1). Unfortunately, this system continues to conflate empiric and nonempiric information, despite the fact that these issues are incommensurable and should not be reflected within a single evidentiary hierarchy system. The result of this conglomeration is that nonempiric facts are erroneously assigned to the lowest level of certainty. These assignments reflect confusion between those instances where evidence is subject to, but has yet to be, scientifically tested, and those instances wherein the truth of the statement cannot be empirically proven. For example, the Class I recommendation regarding the need for an electrocardiogram (ECG) is considered a matter of expert consensus, and though this is true, the consensus does not pertain to an experimentally based question but rather to the current definition of the disease state being discussed. The ECG is the sine qua non of STEMI. All experimentation presupposes this definition. Until the definition is amended or the measurement tool changed, the certainty that an ECG is needed is absolute. This is a nonempiric statement that does not need to be, nor can it be, experimentally proven. Its certainty is parallel to, not subordinate to, the best experimental data.

Similarly, the Class III recommendation not to do coronary angiography on patients where the risks of revascularization outweigh the benefits reflects the nonempiric moral dictum to do no harm. This is a concept that is not open to experimental proof, but is an absolute that forms the basic fabric of our profession. Many other examples of undervalued nonempiric statements appear throughout cardiovascular guidelines. Future task forces/writing groups need to recognize that nonempiric concepts should be separated from empiric concepts and that nonempiric data represent levels of certainty that are parallel to, not subordinate to, empiric data.

**REFERENCES**