

**Harvard Medical School Department of
Continuing Education and the Renal Division
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Nephrology Rounds
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The Cytokine Network in Acute Renal Failure

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Objectives

This issue of *Nephrology Rounds* will help readers to understand:

- the importance of cytokines in the pathogenesis of ischemic, nephrotoxic, and sepsis-mediated acute renal failure (ARF)
- the variable associations between cytokine gene polymorphism and morbidity and mortality in patients with ARF
- the emerging role of novel biomarkers and imaging techniques for early detection of acute kidney injury
- the future direction of genetic studies as important tools in clinical and translational research

Questions:

1. The compensatory anti-inflammatory response syndrome (CARS) phase is characterized by the production of anti-inflammatory monocyte-derived molecules including interleukin-10 and IL-1 receptor antagonist.

True False

2. Morphological studies of acute tubular necrosis in humans demonstrate a preponderance of neutrophils in *vasa recta* and the interstitium.

True False

3. Extracellular cytokine release is episodic and transient and in situ cytokine levels tend to be lower than systemic levels.

True False

4. The study of gene polymorphism in human disease may (choose one):

- a) enhance the understanding of the cause and pathology of disease
- b) identify potential markers of susceptibility, severity, and clinical outcomes
- c) identify potential markers for responders versus non-responders in therapeutic trials
- d) identify targets for therapeutic intervention and improve existing strategies to prevent disease
- e) all of the above

5.-8. For the drugs listed below, select the most appropriate cytokine-modulating effect:

- (A) Theophylline
- (B) Recombinant human IL-10
- (C) Glucocorticoid
- (D) Thalidomide

5. Reduces TNF- α synthesis and up-regulates IL-10 synthesis

- A B C D

6. Increases IL-10 transcription and synthesis

- A B C D

7. Promotes TNF- α mRNA degradation

- A B C D

8. Reduces TNF- α transcription and synthesis

- A B C D

9. The release of interleukin-10 is delayed relative to that of pro-inflammatory cytokines.

- True False

10. In ARF, activation of complement and neutrophils by the contact of blood with cellulose-based dialyzers might delay the recovery of renal function.

- True False

To receive AMA category 1 credit, you must correctly answer 60% of the test questions.

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Please keep a copy of your test before submission. A certificate will be sent upon successful completion of the test along with the answer key after the deadline date indicated.

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