Challenges for the Basis of Practice

The Role of Digoxin in the Treatment of Heart Failure

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Digoxin and diuretics were once the cornerstones of therapy for patients with chronic heart failure. During the past 2 decades, an increasing number of therapeutic options for the treatment of symptomatic heart failure has emerged. Demonstrated benefit of these therapies has led to parallel growth of practice guidelines and performance measures. As a result, physicians caring for patients with heart failure face the increasing challenge of introducing and titrating multiple medications to achieve the perceived benefit promised by clinical trials while adhering to guideline-driven treatment algorithms.

The role of digoxin in the treatment of heart failure is long and storied, with the Digitalis Investigation Group (DIG) trial a relatively recent addition. Currently, the addition of digoxin for the treatment of stage C heart failure is a 2B (level of evidence B) recommendation. The DIG trial itself is still undergoing reinterpretation, particularly for subgroups defined by gender or clinical severity. However, the patients in the DIG trial may no longer reflect the heart failure population today, which has been reshaped by β-blockers, aldosterone antagonists, and devices to resynchronize contraction and prevent sudden death. Furthermore, the serum digoxin concentrations of many of the patients in the DIG study exceeded current recommendations. With this in mind, when should digoxin be added to the treatment of patients with decompensated systolic heart failure? Should dosing be guided by digoxin serum concentrations? Clinical studies have suggested increased hospitalizations and all-cause mortality when discontinuing chronic digoxin therapy in stable patients. Once started, when should digoxin be discontinued in patients with improved left ventricular function and stable symptoms?

References


KEY WORDS: heart failure  digoxin  treatment

The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

This article is Part I of a 2-part article. Part II appears on page 208. From the Division of Cardiac Services, Maine Medical Center, Portland, Me.

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EDITOR’S NOTE

Challenges for the Basis of Practice will be a regular feature of Circulation: Heart Failure (see Stevenson LW. Challenges for the basis of practice in heart failure. Circ Heart Fail. 2008;1:81–83). It is designed to provide a forum for presentation and discussion of decisions arising commonly during the care of individual patients. The essence of “practice” in the context of medicine is best defined by its earliest meaning, “actual application of a plan or method, as opposed to the theories relating to it,” from the Greek work “praktikos,” meaning “concerned with action” (see Compact Oxford English Dictionary. Oxford, United Kingdom: Oxford University Press; 2005). Each day, most of the questions that must be answered in real time are unanswered by clinical trials, and many are unanswered even by those guidelines with level of evidence C, on which expert consensus has been reached from clinical experience without a randomized basis of evidence.

A Challenge to Practice topic can be submitted, in 500 words or less, by up to 5 clinicians, who can include physicians and/or nurses and will be cited as authors. After selection of the topic, a recognized expert consultant will be invited to review his or her own practical approach to the question.

The first topic selected was the use of digoxin in contemporary practice, as well-summarized by Drs May and Diaz from Portland, Me. The challenge was accepted by Dr Gary Francis, widely recognized as a master clinician as well as a scientist contributing profoundly to our understanding of the pathophysiology of heart failure.

Readers are invited to submit brief responses after publication of the question and expert review. These may describe personal clinical experience or practical lessons gleaned from published literature and should be identified as “Challenge Response” when submitted. Representative views will be selected for publication in excerpt form in subsequent issues. Although many controversies cannot be fully resolved with current experience, we are confident that this forum will stimulate observation and provide reassurance that we do not practice alone, but within a dedicated community.
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