FDA Questions for Circulatory System Devices Panel
Acorn CorCap Cardiac Support Device
P040049
June 22, 2005

Evaluation of Device Safety

The patient operative reports indicate that performing a subsequent operation on CorCap patients was complicated by the presence of dense adhesions.

1. Please comment on whether placement of the CorCap device, and the resulting increased difficulty for follow-on surgery, especially coronary bypass operations, will compromise patient safety during a subsequent operation.

Forty two patients had evidence of constrictive physiology on at least one echocardiogram after CorCap implantation.

2. Please comment on whether there is adequate information to assess whether placement of the CorCap CSD causes clinically significant pericardial constriction.

The regulations under which a Pre Market Application is assessed for marketing approval require demonstration of a reasonable assurance of safety.

3. Please comment on whether the information provided in the Panel Pack, and resented at this meeting, is sufficient to demonstrate a reasonable assurance of safety for the CorCap devic system.

Evaluation of Device Effectiveness

As the protocol evolved during the course of the trial FDA requested that NYHA class be assessed by a blinded observer rather than by the site investigator. Blinded assessment of NYHA class at entry was not available for more than half of the patients; their NYHA class (for the purpose of the statistical analysis of the composite primary effectiveness endpoint) was imputed using a statistical model.

4. Please comment on whether the imputation of NYHA class compromises the analysis of the composite primary effectiveness endpoint, which includes NYHA class as one element.

The primary determination of device effectiveness was assessed by a composite of mortality, NYHA score and the necessity of re-operation for worsening heart failure. As individual measures neither mortality nor NYHA class were statistically significantly improved in device as compared to control patients. However, CorCap patients experienced significantly fewer re-operations (to treat worsening heart failure) than did patients in the control group.

5. Please comment on the extent to which possible physician treatment bias (reluctance to refer for or to perform re-operation on CorCap patients) might have affected the disparity in the number of device vs. control patients who received a re-operation (major cardiac procedure) for worsening heart failure.

6. If it is your opinion that physician treatment bias did affect the number of re-operations in device patients please indicate whether you think such bias affected the outcome of the primary effectiveness endpoint; if so, to what degree?

7. FDA notes that the incremental effectiveness of the CorCap when used together with MVR appears to be less than that of the CorCap alone. Please comment on this apparent difference in effectiveness between the two groups.

8. Please comment on whether the results of this clinical trial are sufficient to demonstrate a reasonable assurance of effectiveness for the CorCap CSD.

Secondary measures of device effectiveness included measures of ventricular geometry (e.g., left ventricular dimensions) and patient quality of life (MLHF and SF-36) and functional status (6 minute walk and MVO_2).

9. Please comment on whether some or all of the secondary measures of device effectiveness can be used to assess the effectiveness of the CorCap CSD. If your answer is "yes", please explain which measures are useful, and how you interpret them.

10. Please comment on whether the benefits of CorCap CSD therapy outweigh its risks.

Labeling

One aspect of the pre-market evaluation of a new product is the review of its labeling. The labeling must objectively describe which patients are appropriate for treatment, indicate potential adverse events associated with the use of the device, and explain how the product should be used to maximize clinical benefit and minimize adverse events. If you recommend approval of the device, please address the following questions regarding product labeling.

11. With reference to the proposed labeling:

    a. The majority of patients studied had dilated cardiomyopathy and yet the number one cause of heart failure in the U.S. is ischemic cardiomyopathy. Please comment on whether the results of this study can be extrapolated to an ischemic cardiomyopathic population.

    b. Do the proposed Indications for Use adequately define the patient population studied and for which the device will be marketed?

    c. Are there any additional warning, precautions, or contraindications that you think should be included in the labeling to assist practitioners?

Training

Selection of patients to receive heart failure therapy with, and surgical placement of, the CorCap CSD requires the referring cardiologist and the surgeon to assess multiple factors, some of which are unique to the device. The sponsor has not included a physician training program as part of the proposed labeling.

12. Please comment on whether a physician training program is necessary for this device system. If your answer is "yes" please comment regarding the specific elements that should be included in the training program.

Post Approval Study

The sponsor has proposed a post-approval study to include up to 348 patients who will be followed for 5 years, the intent being to follow the long-term performance of the CorCap CSD in the general patient population.

13. Given the concerns expressed above, please comment as to the suitability of the proposed post approval study. If additional elements should be included, what are they?

14. Please comment on an appropriate comparison group to evaluate the safety and effectiveness of the CorCap CSD against, based on the results of surveillance during a 5-year period.

Traditionally, the most common etiology of heart failure is ischemic disease, however, a majority of patients in the clinical trial had heart failure that was idiopathic (61%), and the trial included a much smaller number of patients with heart failure due to ischemic disease (10%).

15. Should the post approval study accurately reflect the distribution of prevalent heart disease etiology in the general population? If so, how should this be achieved?

16. Are there any other elements that the sponsor should include in their proposed post-approval study?