Brief Summary of the Circulatory System Devices Panel Meeting – October 9, 2013

Introduction:

The Circulatory System Devices Panel of the Medical Devices Advisory Committee to the Food and Drug Administration met on October 9, 2013 to make recommendations and vote on information related to the premarket approval application for CardioMEMS, Inc. Champion™ HF Monitoring System. The CardioMEMS HF System is a permanently implantable pressure measurement system designed to provide daily pulmonary arterial pressure measurements including systolic, diastolic and mean PA pressure. These measurements are used to guide treatment of congestive heart failure. The system consists of a permanently Implantable Pressure Sensor that is deployed within the distal pulmonary artery using a guidewire compatible, catheter-based Delivery System. The Sensor is not battery powered and is interrogated by the Electronics Unit which in turn uploads the measured pulmonary artery pressure waveform to a secure database for review by medical professionals using a secure web-based interface.

The panel was asked to consider the results of a series of ancillary analyses to address two deficiencies sent to the sponsor in a not approvable letter for the Champion™ HF Monitoring System.

Panel Deliberations/FDA Questions:

QUESTION 1: Potential Differences in Groups in Ancillary Longitudinal Analyses

a. Please comment on the overall validity of the ancillary analyses given their limitations.
b. Please comment on the potential survival bias introduced by subjects exiting the study prior to Part 2.
c. Please comment on the death rate being lower in the Former Control group than in the Former Treatment and consider if this is indicative of population differences between the study groups.

The panel members acknowledged the limitations of the ancillary analyses. However, the panel members were split when considering the overall validity of the ancillary analyses when considering the limitations. Some panel members were in favor of accepting the totality of the data despite the limitations, while others did not consider the ancillary data to be valid because of the limitations.

QUESTION 2: Clinical Significance of Results and Overall Effectiveness / Impact of Analysis Limitations

a. Please comment on the clinical significance of the observed treatment effect in the Part 1 and Part 2 analyses.
b. Please comment on the overall effectiveness of the device and the clinical significance of the results, taking into account the totality of the data presented along with the limitations discussed. Please provide a discussion on all of the key factors that influence your assessment.

There was general agreement amongst panel members that the Number Needed to Treat (NNT) of 3-5 to reduce the number of heart failure related hospitalizations in a year was a significant result, assuming the data is accurate. However, some panelists expressed that there is uncertainty whether the device was the cause of the observed results.

QUESTION 3: Results of Gender Analysis

Panel members expressed a concern that less was known about device effectiveness in women. The panel members discussed that the treatment by gender interaction was a quantitative and not a qualitative result. That is, the effectiveness data for women appeared to be pointing in the same direction as the effectiveness data for men, and not in opposite directions. The Panel stated that if a PAS would be recommended, then the apparent gender difference should be studied further, ideally with a randomized or concurrent control.

QUESTION 4: Benefit Risk Profile

Panel members were split in their response to this question. Some panel members continued to raise concern as to whether the device is responsible for, as opposed to associated with, the reduction in heart failure related hospitalizations.

QUESTION 5: Indications for Use

Panel members commented that the proposed Indications for Use appeared reasonable. Additional comments were offered for potential revisions or clarifications to the proposed Indications for Use, which included adding an operational definition of Heart Failure Class, resolution of concerns about use in small children and in females, contraindications based on patients' pulmonary vascular resistance, and contraindications based on patient size.

QUESTION 6: Labeling

Panel members agreed that the proposed labeling is appropriate.

QUESTION 7: Proposed Post-approval Studies

Panel members agreed that, should the device be approved, a PAS be conducted. The panel members also had specific recommendations for the PAS, which included an effectiveness evaluation through two years of follow-up, a longer safety endpoint of 3-4 years, an appropriate performance goal as 0.8 is too low given the device's established performance during the trial, and further evaluation of device effectiveness in women.

Vote:

The panel voted on the safety, effectiveness, and risk benefit ratio of the expansion of indications supported by the BLOCK HF trial applied to all market-approved Medtronic CRT-P and CRT-D devices.

On Question 1, the panel voted 11-0 that the data shows reasonable assurance that the CardioMEMS HF Pressure Measurement System is safe for use in patients who meet the criteria specified in the proposed indication.

On Question 2, the panel voted_____4-7_____ that there is reasonable assurance that the CardioMEMS HF Pressure Measurement System is effective for use in patients who meet the criteria specified in the proposed indication.

On Question 3, the panel voted____6-4 (1 abstain)_____ that the benefits of the CardioMEMS HF Pressure Measurement System do/do not outweigh the risks for use in patients who meet the criteria specified in the proposed indication.

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