

Artificial Blood Conduit For Coronary Heart Diseases

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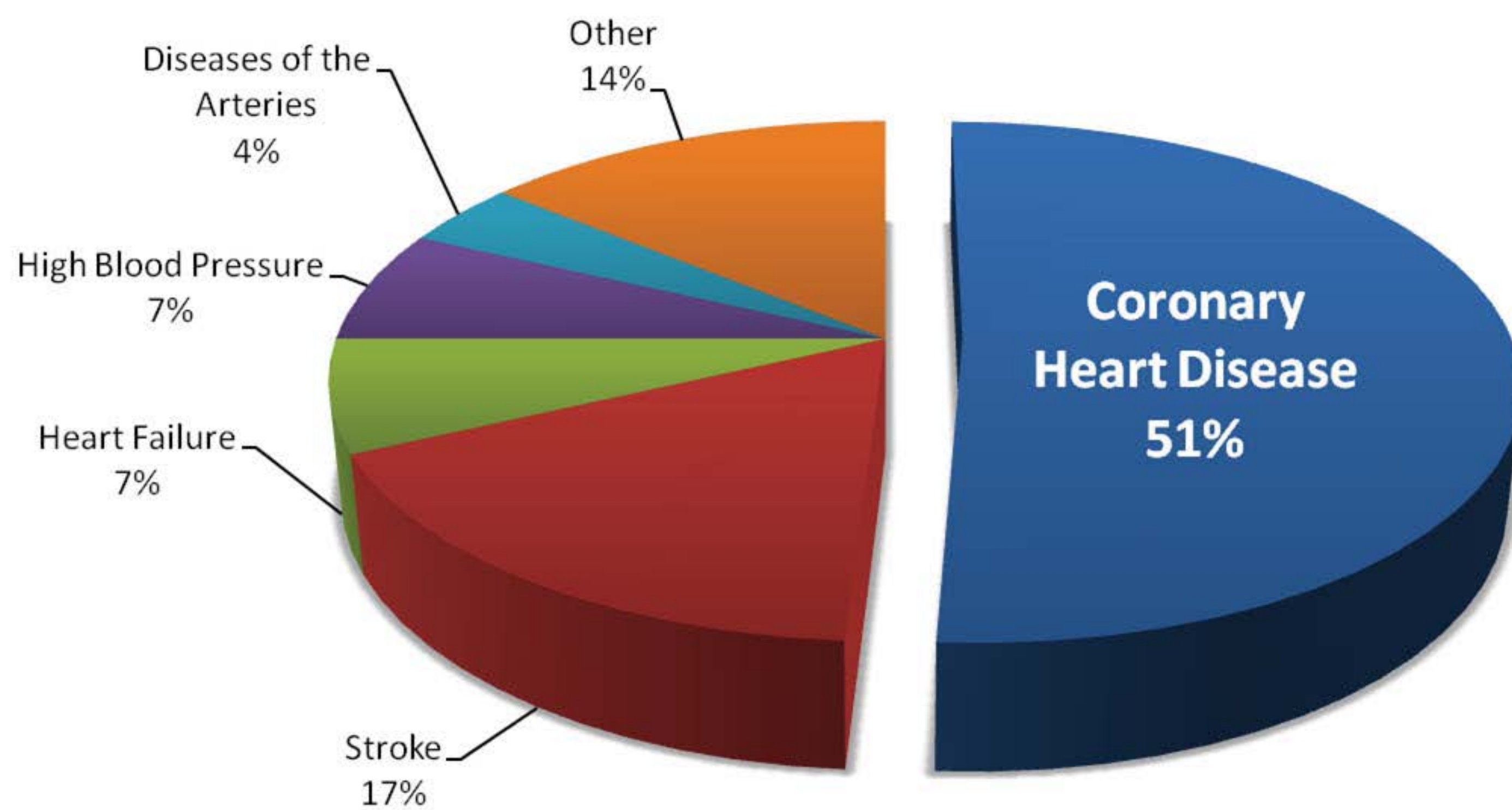


Figure 1 Percentage breakdown of deaths from cardiovascular diseases (United States, 2006)

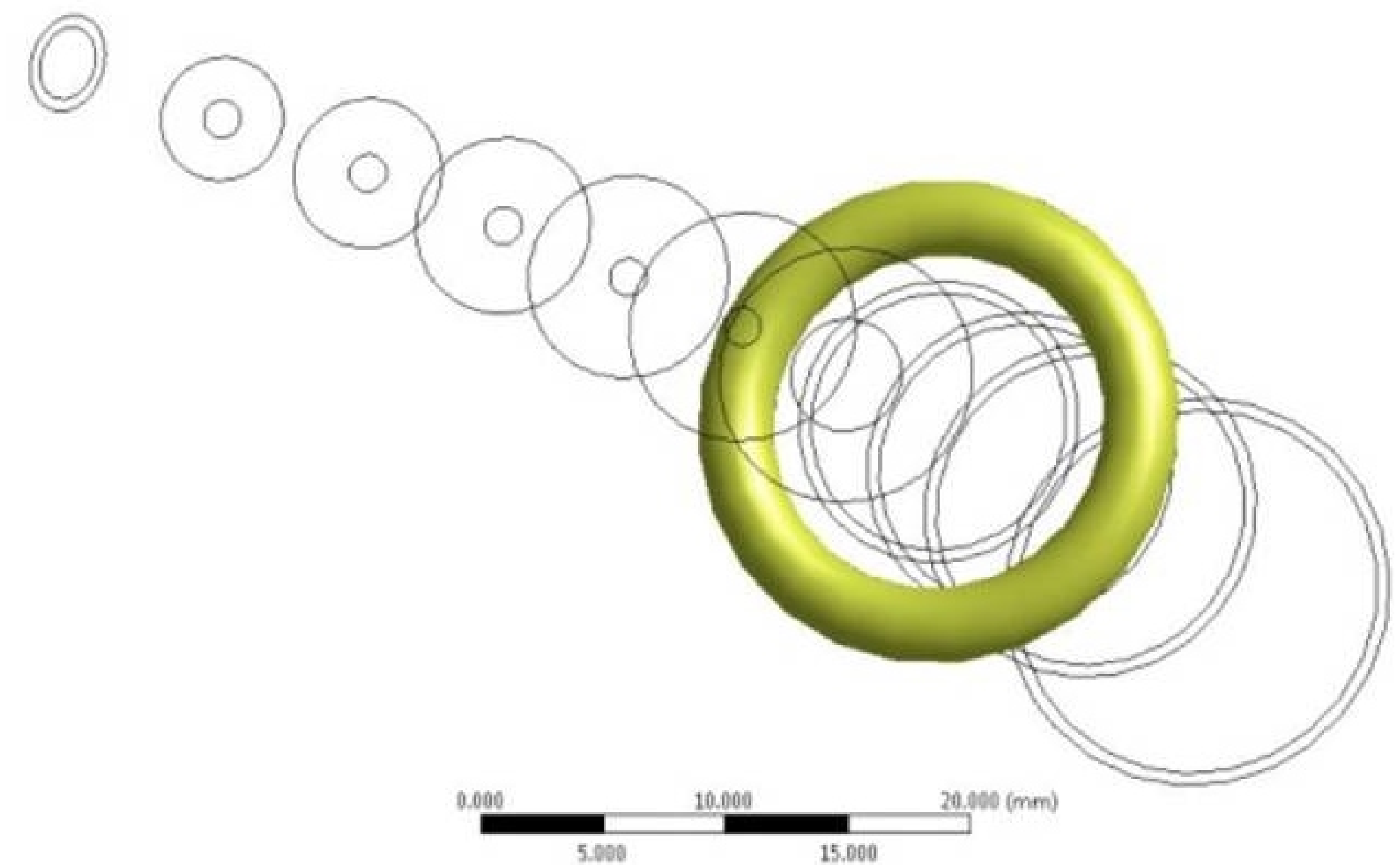


Figure 2a 3D model of coronary sinus conduit

INTRODUCTION OF TECHNOLOGY

Coronary Artery Bypass Grafting (CABG) was first developed between 1967 and 1968. Its safety and immediate benefits are well established. However, there are a subset of patients who have diffuse coronary artery disease and are symptomatic. These patients show global cardiac enlargement with diffuse myocardial involvement. Coronary atherosclerosis in these patients is severe and involves multiple vessels. Prognosis is grave with a 5 and 7 year survival of 45% and 34%. Experimental and clinical data suggest that methods such as Pressure - controlled Intermittent Coronary Sinus Occlusion (PICSO) and Synchronized Retro Perfusion (SRP) can reduce ischemia, salvage jeopardized myocardium and can reduce infarct size. Today, retrograde coronary sinus cardioplegia delivered through the coronary sinus is attributed to produce better myocardial protection because of more homogeneous distribution of cardioplegia. With these facts in mind, a conduit to deliver blood between the aorta and coronary sinus was developed where blood delivered through the coronary venous vasculature would remain at appropriate low pressures without causing endothelial damage to the system.

INVENTION

This **ARTIFICIAL BLOOD CONDUIT** innovation is a medical device to treat heart disease. It functions as a transatrial aorto-coronary sinus which is used in the treatment of diffuse coronary atherosclerosis patient. The design is based on:

- ❖ Venturi Concept (overall design)
- ❖ Venturi Throat Concept –**VETCO** (Narrower sub-section)
- ❖ Slanted Top Design (inlet)
- ❖ Pressure drop (80-15 mmHg) with laminar flow linear equation is created.

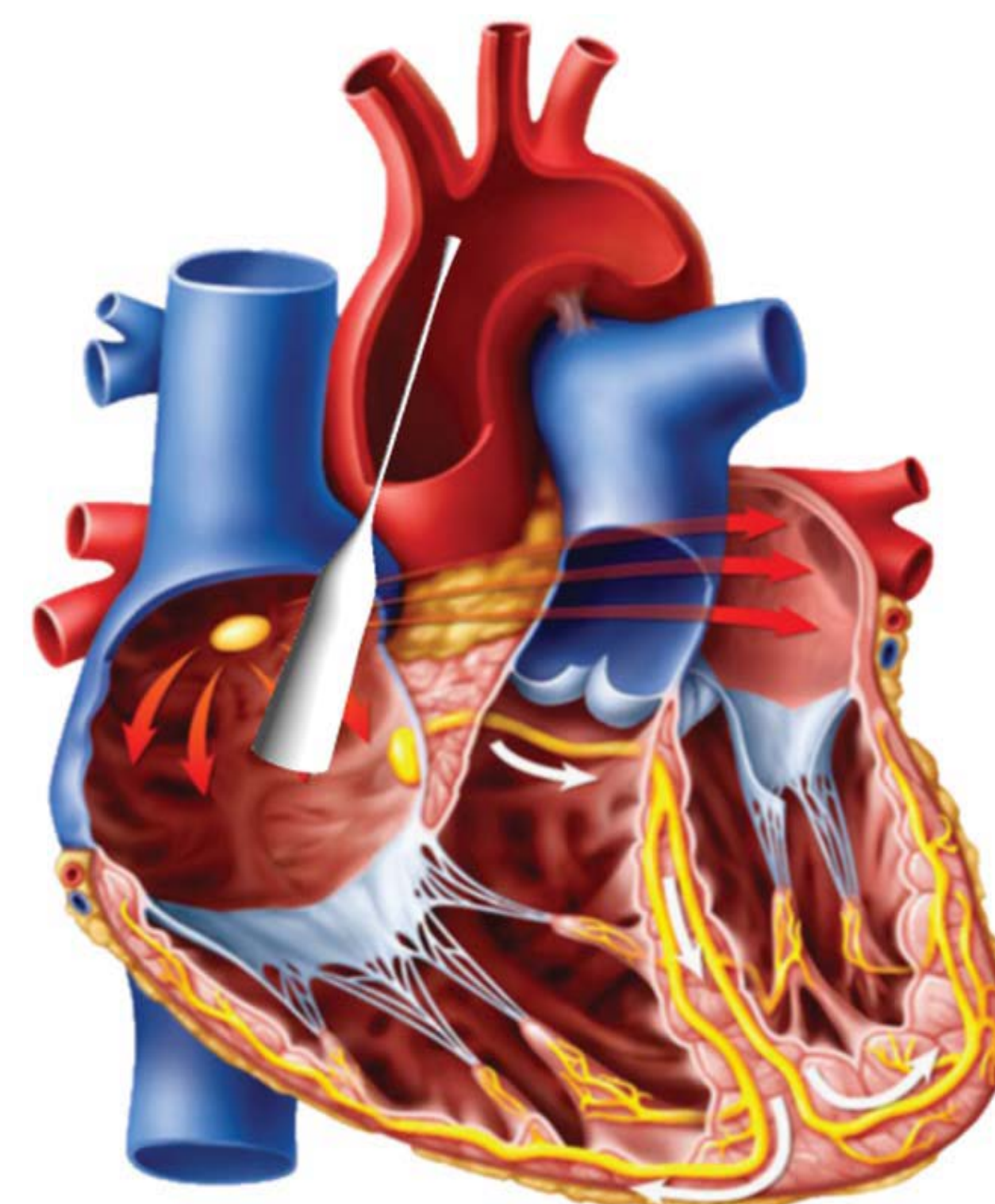


Figure 3 Overall view of ABC on human



Figure 2b 3D model of coronary sinus conduit

ADVANTAGES

- ❖ To treat heart attack patient
- ❖ To improve health quality of human
- ❖ Prolong 5 to 7 years survival of heart patient

MARKET POTENTIAL

LOCAL MARKET

Government (IJN), Private
Medical Hospitals and Cardiac patient

GLOBAL MARKET

USA, Middle East and India with high cholesterol diet
Global estimated price: Million dollars
Estimated price/unit USD1500



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