

# Highlights of the interventional approach for cardiovascular disease

## Editorial

Cardiovascular disease control is currently an unsolved problem for public health, notwithstanding there is evidence of continuous progresses to reduce its rate and perform an adequate treatment of the affected individuals. In addition, both rate reduction and therapy conducted for improving cardiovascular performance follow different steps when the results obtained are to be statistically estimated. Several studies have investigated the effects of the new approaches in fighting cardiovascular disease, primarily some of these,<sup>1-4</sup> but not unanimous results have been achieved. There is evidence that three trends need to be discussed: 1. The role of medical therapy, 2. The progresses in surgical interventions, including heart transplant, 3. The physical activity and lifestyle of the individuals suffering from cardiovascular disease.

In the current era, medical interventions have provided new insights primarily in gene and molecular therapy since the findings of angiogenesis have reached an impressive development.<sup>5</sup> It is worth noting that the second generation of angiogenic agents is therapeutic transgenes that enhance the expression of two or more proangiogenic cytokines.<sup>1</sup> These include synthetic constructs that mimic that activity of endogenous transcriptional regulators and other upstream, regulatory factors that have shown to be able in inducing the formation of morphologically and physiologically functional vessels. These agents are now beginning to be evaluated in clinical trials for patients with advanced ischemic cardiac and peripheral vascular disease.

Surgical therapy of cardiovascular disease mainly is conducted in individuals affected by specific patterns of ischemic heart disease as well as heart transplant.<sup>6-9</sup> With regards to Coronary Artery Bypass Graft Surgery (CABGS), the crucial role has been and still is to identify the patients who may obtain significant benefits by using this procedure. Epidemiological observations have shown more than 200,000 individuals undergo CABGS each year in the United States<sup>6-7</sup> with, usually, a significant improvement in coronary blood flow due to the new way built over the occluded artery. However, it is worth noting that CABGS does not fight the causes responsible of the ischemic disease but improves coronary circulation and, consequently, myocardial blood flow in the altered area. Therefore, changes in lifestyle as well as reduction of the harmful effects of the major cardiovascular risk factors<sup>10</sup> should follow the surgical intervention.

Heart transplant<sup>11</sup> is a surgery technique that removes the heart of an individual with severe heart failure at the end-stage and replaces it with a healthy heart from a deceased donor to improve the quality of life. In addition, an increase in lifespan is usually obtained. Most heart transplants are done on patients with severe heart failure who are non-responders to other treatment options. End-stage heart failure may be caused by conditions such as coronary heart disease, viral infections, or hereditary conditions. In rare instances, heart transplant may be performed at the same time as lung transplant in patients who have severe heart and lung disease.

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Despite the surgical risks, heart transplant has a good success rate that has improved over many decades of research. Recent survival rates are about 85 percent at one year after surgery, with survival rates decreasing by about three to four percent each additional year after surgery because of the appearance of serious complications. Therefore, further investigations need to determine long-term survival rate for the individuals undergone heart transplant. Changes in lifestyle of individuals suffering from cardiovascular disease are today greatly recommended. Briefly, these consist of measures addressed to avoid or reduce the effects of risk factors, primarily cigarette smoking.<sup>12</sup>

A healthy lifestyle is fundamental to ensure both better physiological responses of human body and prevention of cardiovascular diseases, resulting in significant reduction in mortality, morbidity and permanent disability<sup>13</sup> as studies undoubtedly show. Three groups of factors usually influence and regulate lifestyle.<sup>14</sup> The first group involves the genetic characteristics of an individual, the second is associated with some external factors mainly related to the environment and individuals' habit like physical activity, alcohol consumption and cigarette smoking, and the third group is addressed towards cardiovascular pathology where ischemic heart disease and chronic heart failure are the strongest determinants not only of lifestyle choices but also of their limitation.

## Conclusion

It is undoubtedly confirmed that an enormous progress has been observed and continuously may be seen in the cardiovascular findings to treat heart and blood vessel disease. However, the interventional highlights do not still achieve those results that permit to consider this type of disease completely under control.

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## Conflicts of interest

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