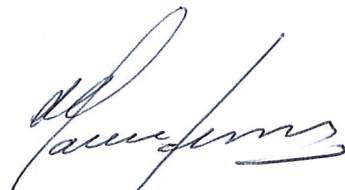


THE HEART

The heart can be considered to be two pumps in series, each complementing the other, but pumping blood to different parts of the body. The left heart, which comprises the left atrium and the left ventricle, pumps oxygenated blood to all organs of the body except the lungs. The desaturated blood (ie blood with removed oxygen) is then returned via the venous system to the right heart, which comprises the right atrium and the right ventricle. The right ventricle pumps blood to the lungs, where the blood is oxygenated and returns to the left heart to once again complete the circuit. Right heart failure and left heart failure can occur independently but invariably if severe, right heart failure will eventually affect the left heart, and similarly left heart failure will eventually affect the right heart.

People who suffer from interstitial lung disease such as asbestosis commonly develop right heart failure. As asbestosis within the lung increases in severity, more and more scarring and removal of functioning lung tissue occurs. This results in obliteration of vascular beds and gas exchange areas (alveoli) and this in turn results in lower oxygen levels in the blood being delivered to the left heart for distribution to the rest of the body. The low oxygen levels have another effect. They result in constriction and increase in right heart pressure which increases the work of the right ventricle in pumping blood through the lungs. Consequently the right ventricle increases in thickness and calibre (as all muscle does when presented with increasing work), but in doing so it eventually becomes less able to pump blood efficiently to the lung.

Other complications within the heart occur, such as valvular dysfunction and abnormal heartbeats (cardiac arrhythmias). Cardiac arrhythmias in turn result in further compromise in the ability of the heart to pump blood throughout the body and the lung, and results in increasing breathlessness, increasing disability and increasing complications such as cardiac arrest and death. Right heart failure can be further compromised by pulmonary infections, which are more common in patients suffering from fibrotic lung disease, such as asbestosis. When an infection is present, the ability of the heart and the lungs to oxygenate the blood is further compromised and further complications can occur when a patient develops pulmonary infections. This may result in prolonged hospitalisations to treat pneumonia, cardiac arrhythmias (abnormal heartbeats) and increasing heart failure when patients are admitted. Ultimately right heart failure results in left heart failure with increasing disability and ultimately death.

A handwritten signature in black ink, appearing to read 'J. J. J. J.', located in the bottom right corner of the page.