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EDITORIAL COMMENT

One small step for exosomes, one giant leap for Kawasaki disease

Um pequeno passo para os exossomas, um salto gigante para a doença de Kawasaki

Henrique Girão

CNC.IBILI, Institute of Biomedical Imaging and Life Sciences (IBILI), Faculty of Medicine, University of Coimbra, Coimbra, Portugal

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Communication between cardiac cells is essential to ensure heart homeostasis and function. This intercellular communication can occur directly between adjacent cells, through connexin-containing channels called gap junctions, or indirectly at long distances, via extracellular vesicles that mediate the transport of biomolecules between cells.[1] According to their origin and size, extracellular vesicles can be divided into apoptotic bodies, microvesicles and exosomes. Exosomes are formed when organelles of the endocytic pathway named multivesicular bodies fuse with the plasma membrane and release the intraluminal vesicles into the extracellular space. The secreted exosomes contain proteins, lipids and nucleic acids characteristic of the cells from which they originate, thus mirroring the biological status of the producing cells.[2] Since they can be easily detected in various biological fluids such as blood, urine, amniotic fluid and saliva, exosomes have emerged as potent diagnostic and prognostic tools. After their release, exosomes can be taken up by recipient cells, where they can elicit a cell response that may involve changes in cell function and behavior.[3] Considerable enthusiasm has been aroused concerning exosomes due to the fact that these vesicles may constitute promising targets in terms of identification of new human disease biomarkers.[4] For this, precise characterization of exosome content is of utmost importance, in order to establish reliable biological markers. Furthermore, exosomes can be considered as carriers of biological information, facilitating the transfer of molecules and signals between distant cells located in different organs and tissues. Therefore fine-tuned regulation of exosome-mediated communication is vital to ensure the organism's homeostasis. Disturbance of these mechanisms can contribute to the dissemination and propagation of harmful signals throughout the body, leading to morbidities and pathologies associated with syndromes.[5]

The study by Jia et al.[6] in this issue of the *Journal* identified the protein profile of exosomes isolated from the blood of patients with coronary artery dilatation due to Kawasaki disease, the commonest childhood cause of acquired heart disease in developed countries.[7] The authors found that the content of exosomes isolated from patients with Kawasaki disease differs from those from healthy controls in 38 proteins. Most of these proteins are involved in the inflammation and coagulation cascades, in agreement with the pathophysiology of the disease, which causes general inflammation of the blood vessels, particularly the coronary arteries. Since early and accurate diagnosis of the disease is vital for successful therapeutic intervention, the present study makes an important contribution to the fight against Kawasaki disease. Although the results need to be confirmed in a larger cohort of patients, they are very promising, as they may pave the way for the development of more effective strategies to detect Kawasaki disease in its initial stages.

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E-mail address: hmgirao@fmed.uc.pt

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Conflicts of interest

The author has no conflicts of interest to declare.

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