Nanomedicine in the fight against thrombotic diseases

July 6 2015

Future Science Group (FSG) today announced the publication of a new article in *Future Science OA*, covering the use of nanocarriers and microbubbles in drug delivery for thrombotic disease.

Ischemic heart disease and stroke caused by thrombus formation are responsible for more than 17 million deaths per year worldwide. Molecules with thrombolytic capacities have been developed and some of them are in clinical practice. However, some patients treated with these molecules develop lethal intracranial hemorrhages. Furthermore, these molecules are rapidly degraded in the blood stream, and therefore large amounts of drugs are needed to be efficacious.

Research has focused on protecting thrombolytic molecules and enhancing their accumulation in clots. In this context, nanoparticles are interesting tools as the drugs can be loaded onto them and are thus protected from degradation in the body. Moreover, thrombus-targeting peptides have been used to concentrate the nanoparticles loaded with thrombolytic molecules into the thrombus.

"With millions of deaths per year resulting from thrombosis, it is important to improve drug delivery and the subsequent outcomes," commented Francesca Lake, Managing Editor. "This review provides an excellent overview of where we stand thus far with utilizing nanoscale technology to solve this issue."

Didier Letourneur (CNRS, France), author of the piece and member of

the Editorial Board of *Future Science OA*, clarified: "This review outlines the preclinical research as well as the clinical trials made in this field. In spite of the encouraging results, more in-depth development is necessary to overcome the limits linked to thrombus deep localization, specific targeting of the clot and a rapid release of the drugs from safe nanoparticles."

The review is available free to read, here: http://www.future-science.com/doi/full/10.4155/fso.15.46

Provided by Future Science Group