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The cerebral embolism evoked by intra-arterial delivey of allogeneic bone marrow mesenchymal stem cells in rats

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Intra-Arterial (IA) cell infusion is an efficient delivery route to target organs, but related adverse events like micro-embolisms were recently reported. We tested the hypothesis that cell dose, infusion volume and infusion velocity might be related to the complications after IA cell delivery. Forty-two rats were subjected to a sham middle cerebral artery occlusion procedure before being infused with allogeneic bone-marrow mesenchymal stem cells through the external carotid artery at different doses (0-1.0×106), infusion volumes (0.5-1.0 ml) and infusion times (3-6 min). Laser Doppler flowmetry and MRI was performed to reveal possible complications. Open field test was conducted to assess sensorimotor functions.There was a cell dose-related reduction in cerebral blood flow, an increase in embolic events as well as sensorimotor impairment. A low infusion velocity (0.5 ml/6 min) was associated with high rate of complications. Particularly cell dose but also infusion velocity should be considered before planning efficacy studies.

Biography

Li-li Cui has completed her MD from China Medical University. She is currently pursuing PhD in the Institute of Clinical Medicine, University of Eastern Finland. She has published more than 7 papers in reputed journals.

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