p-265

Friday

Neural Derived Extracellular Vesicles and their miRNAs cargo in Frontotemporal Dementia and Bipolar Disorder: an exploratory study

Maria Serpente, Chiara Fenoglio, Andrea Arighi, Giorgio Fumagalli, Emanuela Rotondo, Caterina Visconte, Marina Arcaro, Federica Sorrentino, Giuseppe Delvecchio, Lorena Di Consoli, Adele Ferro, Cecilia Prunas, Antonio Callari, Paolo Brambilla, Daniela Galimberti

State of The Art
Many studies suggested a link between Bipolar Disorder (BD) and behavioural variant Frontotemporal Dementia (bvFTD), but the specific neurobiological signatures characterizing these two disorders are still unclear. MicroRNAs (miRNA) are regulatory non-coding RNA involved in several cellular processes; they are stable in body fluids and enriched in extracellular vesicles (EV). EVs can be retrieved in several body fluids. The aim of this study was to analyse the miRNA cargo of neural derived (ND)EVs in plasma from bvFTD, BD patients and healthy controls (HC) in order to identify specific miRNA expression patters.
Methodology
We isolated NDEVs from 10 bvFTD, 10 *C9orf72* FTD expansion carriers, 10 BD (5 early onset BD, 5 late onset BD) patients and 10 HC by immunoprecipitation with anti-L1CAM antibody. Real-Time PCR analysis was performed using TaqMan OpenArray technology, which enabled to detect 754 miRNAs simultaneously.
Results
A specific signature of miRNAs expression was observed for all groups of patients. MiR-181a was down-regulated in *C9orf72* expansion carriers (fold-change over HC = 0.12, p=0.015); miR-223, miR-151-5p and miR-618 were lower in early-onset BD patients (fold-change over HC= 0.028, 0.025, 0.0001, respectively, $p<0.05$); miR-148b and miR-30a-3p were overexpressed in bvFTD (fold-change over HC= 12.01 and 5.89, respectively, $p<0.05$).
Conclusions
We observed a deregulation of miRNA expression levels, specific to each patient group. These data, although exploratory, could be useful to underpinning the neurobiology underling bvFTD and BD.
Nevertheless, further studies are required to identify and understand a specific signature of these disorders.

Conflicts of interest

N/A