Abnormal proteins correlate with aggressive behaviour in dementia

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Researchers at Lund University in Sweden have together with American colleagues studied deceased patients who were diagnosed with Alzheimer's disease or frontotemporal dementia. They observed a

correlation between certain proteins and dementia sufferers' tendency to commit criminal acts.

"This study is unique in that we studied deceased patients, something that means we are 100 per cent sure of the dementia diagnosis, which is not always established while the patients are alive. In addition, we observed that the likelihood of committing criminal acts was nine times higher among patients with frontotemporal dementia who had accumulations in the brain of certain abnormal proteins, above all TDP-43, compared with those who had accumulations of tau protein. The TDP-43 proteins seem therefore to be particularly associated with developing criminal behaviour among people with frontotemporal dementia", says Madeleine Liljegren, researcher at Lund University and resident physician at Psychiatry Northwest in Stockholm.

When a person who previously has been perceived by those around them as well-behaved starts committing criminal acts such as theft, shoplifting, sexual harassment or other aggressive behaviour, there may be a dementia disease behind these unexpected actions. This has been shown in previous studies including some from Lund University (see Liljegren M et al, JAMA Neurology 2015, among others).

Researchers in the Neuropathology team in Lund studied 220 deceased patients with Alzheimer's disease or frontotemporal dementia (FTD), who had been monitored at the Memory Clinic in Lund between 1967 and 2017. Of these, 30 per cent had committed a criminal offence – 15 per cent of the total number of patients who had Alzheimer's and 42 per cent among those who had FTD. The latter group committed repeated criminal offences to a greater extent than the Alzheimer's group.

When examining behaviour such as excessively loud laughing or unexpected shouting, the FTD group is also overrepresented (75 per cent), compared with the Alzheimer's group (56 per cent).

"It confirms what we have seen in previous studies. With these patients, the damage is in the frontal part of the brain, where our personality, including impulse control and empathy, resides", says Madeleine Liljegren, emphasising that dementia diseases do not exclusively affect the elderly.

"Frontotemporal dementia can also occur in younger people and it can often take a long while before there is a correct diagnosis. That is why it's important that relatives, healthcare services, the police and the entire legal system respond to altered social and criminal behaviour and provide assistance to enable these people to get medical care", she concludes.

More information: Madeleine Liljegren et al. Association of Neuropathologically Confirmed Frontotemporal Dementia and Alzheimer Disease With Criminal and Socially Inappropriate Behavior in a Swedish Cohort, *JAMA Network Open* (2019). DOI: 10.1001/jamanetworkopen.2019.0261

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