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Alzheimer's Disease and Tau proteins.

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Sir, - Dr Iqbal and colleagues (Aug23, p 421) demonstrate the role of the phosphorylation of tau proteins – a group of microtubule-associated proteins – in the defective assembly of brain tubulin into microtubules in Alzheimer's disease. Several other groups have raised antisera against paired helical filament preparations ; the antibody we raised was found on immunoblotting to contain anti-tau antibodies[1]. In collaboration with Prof. J. Nunez (Paris) we raised an antiserum against the tau proteins : this antiserum labelled selectively the tangles and abnormal neurites around the senile plaques[1-3] on paraffin tissue sections in Alzheimer's disease. These results were also presented as a poster at an international meeting in Belgium in 1985[4]. Several other contributions have confirmed that tau, especially phosphorylated tau[5,6], may be an important component of the paired helical filaments observed in Alzheimer's disease and some other related conditions[7-11]. Having been studying microtubules and axonal transport for many years, we suggested[12,13] that disturbances of microtubule assembly may be the cause of the abnormal axonal transport observed in Alzheimer's disease. A role for microtubules and associated proteins in tangle formation has been suggested by others.

Thus all recent data confirm a possible link between microtubules, the tau proteins required for their stability, and disturbed axoplasmic flow in Alzheimer's disease. Immunocytochemical studies have shown that phosphorylated antigens belonging to other cytoskeletal proteins (eg, neurofilament side-arm proteins) can be detected on paired helical filaments, and interference with the transport of neurofilament have been hypothesised as a possible mechanism for axonal flow disturbances[14]. These data have to be kept in mind in the understanding of the chemical nature of paired helical filaments.

Since the first evidence of labelling of the tangles by an anti-tau antiserum was obtained in our laboratory, the absence of any mention of our results in Iqbal and colleagues' paper is regrettable.

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