

Does brain protein kill Alzheimer's patients?

The Killer Amyloid! It sounds like a tacky monster in a third-rate horror show, but it really does kill people.

Amyloid is the abnormal material — a protein — that builds up in the brain of a person with Alzheimer's disease. It is found in the plaques, tangles and surrounding tissue in brain cells. Some medical authorities think it is this amyloid that's the killer, destroying the brain cells and consequently memory and mental functioning.

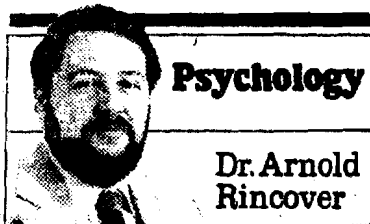
One researcher in New York city, who examined the brains of people who died from the disease, found amyloid before discovering plaques or tangles. The brains he examined were in different phases of deterioration.

Further research has found amyloid is triggered on a particular gene on the 21st chromosome. All of us have this gene, but no one knows what pulls the trigger or why this gene becomes active (producing amyloid) in some people, but not in others.

Is amyloid the killer in Alzheimer's patients? We don't know for sure yet, according to Dr. Audrius Plioplys, a neurologist at Surrey Place Centre and the Hospital for Sick Children. It certainly seems to be involved. It's an abnormal material, known to produce severe neurological damage and mental deterioration. But, no one knows how to dissolve this material.

Researchers are working on the material and a second line of study focuses on patients who have Down's syndrome. It is interesting to note that the gene that produces amyloid is on the same chromosome that causes Down's syndrome. Furthermore, according to Plioplys, the large majority of people having Down's syndrome also get Alzheimer's by the age of 40.

Plioplys' research on Alzheimer's is conducted with



Down's patients, because these are the only people we know of who are highly likely to get Alzheimer's. Plioplys explains a brain cell has a skeleton, like our body, called a cytoskeleton. In Down's syndrome patients, this cytoskeleton may be abnormal, and the nerves may shrivel up, grow the wrong way, fail to transport nutrients to all parts of the cell, etc. As a result, the health of individual cells, and the connection between cells, is disrupted. Since the communication between cells is what our mental processes are all about, such damage to the cell skeletons can produce a deterioration of memory and mental functioning. Here again, we find a possible link to Alzheimer's disease. . . . but we don't know what to do about it yet.

Other researchers are focusing more on the treatment than the causes of Alzheimer's disease. According to Dr. Arthur Dalton of the Surrey Place Centre, researchers have found abnormal amounts of aluminum in the brains of Alzheimer's patients. Since aluminum is known to interfere with higher mental functioning, several studies in Canada and the United States are now in progress to see if the disease can be slowed by removing aluminum from the brain.

Dr. Rincover is a registered psychologist, on staff at Surrey Place Centre in Toronto. The column is not intended to provide treatment or advice and anyone concerned about a psychological problem should seek professional assistance. Readers can write to Dr. Rincover at the Life Section, Toronto Star, One Yonge St., Toronto M5E 1E6.

LIFE

SECTION F
Pages F1-F12