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Risk factors and premorbid personality in Alzheimer disease: preliminary study. (R)

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SUMMARY

This article summarizes the main studies of the risk factors predisposing to Alzheimer's. It prioritizes psychosocial factors, especially those referring to premorbid personality. The most important psychosocial risk factors are low level of schooling and restricted social activity and relations.

Hagnell et al. (1992), Bauer et al. (1995) and Malinchoc et al. (1997) are among the leading studies of the theme of premorbid personality. The need for protection and guidance, dependence on others, restricted social or interpersonal relations and introversion are the major elements of risk that these studies identify.

This article is a preliminary study that forms part of an ongoing research project. The factors that appear in the studies mentioned above are related to the project's working hypothesis, formulated in 1995-96, of the risk profiles in the premorbid personality of Alzheimer sufferers. This hypothesis situates these profiles in the field of the emotions and interpersonal relations: fragile personal identity, and ego support via a symbiotic relationship with another person.

Key words: Alzheimer's disease; premorbid personality, risk factors

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1.- Introduction Environmental and psychosocial factors

The social magnitude and impact of Alzheimerís disease and the mystery surrounding its etiology, the biophysiological mechanisms involved, and risk factors have inspired numerous investigations, most of which have had a medical-biological focus. Attempts to identify the metabolic problems of the amyloid protein at neuronal level, the role of the neurotransmitters at the synapse, or more recent studies on the genetic involvement in hereditary transmission have occupied and still occupy many biologists, neurologists, and geneticists.

Epidemiological studies have defined a number of well-established risk factors, and a long list of probable factors requiring fuller investigation. A. Jorm (1994, 1997) offers an overview of these factors. Increasing age, family history of dementia and Down's syndrome, and the Apo-E genotype are the most important; among controversial factors he mentions ethnic group, head trauma, and a high level of aluminum in drinking water. Finally, as possible factors of protection, he mentions anti-inflammatory drugs, estrogen therapy, and high level of education.

In recent years, a range of studies have suggested the involvement of a series of non-biological factors which present high statistical correlations with subjects in whom Alzheimerís disease has been diagnosed. Among them are what could be termed environmental factors, i.e. conditions which are external to the subject, and which bear an influence on the state of health of a specific community.

A study of Finnish twins (13,888 pairs) reported that Alzheimerís disease develops in only half the pairs of identical twins, and presents at ages that may diverge by as much as 15 years; environmental factors must therefore account for these differences. A study of 4,000 Japanese resident in Hawaii found the rate of dementias of all types in the 3,734 survivors after 30 years to be 9.3% and the rate of Alzheimerís 5.4% (figures similar to those recorded in Europe and the US). In Japan the rate of dementias of all kinds was 3.2%, and of Alzheimerís 1.5%; in the study in Hawaii, the fact that the subjects had emigrated must have had some influence. From these and other studies, the conclusion emerges that there must be environmental factors - some physical, some cultural - which have not been clearly identified to date and which play some part in the etiology of the illness.

This article aims to describe first a set of factors that we term ìpsychosocialî. Second, we discuss what in the field of Health Sciences are termed ìlife eventsî. Finally, we focus on reports of the existence of individual predispositions of a psychological nature that present a high correlation with Alzheimerís disease. Identifying elements of premorbid personality is a classic theme in the Health Sciences, and has led to the formulation of the pattern of type A behaviour (risk of cardio-vascular illnesses), whose main traits are anger, hostility or aggressiveness, and the pattern of type C (risk of cancer), characterized by openness, cooperation, reliability, and a tendency to inhibit oneís emotions. These profiles have a high statistical correlation with disease and have considerable potential in the field of health care.

2. - Environmental and psychosocial factors

a) Socioeconomic status (SES): Jorm, in his book published in 1990-1994[1], analyzes the major studies of socioeconomic status and stresses the relation between cognitive alterations, economic status and educational level. He concludes that there is indeed an association between SES and the incidence of dementia which cannot be due merely to biases in evaluation.

The recent study by Evans et al. (1997) of a sample of 642 individuals concluded that markers of low socioeconomic status were predictors of the development of Alzheimer's; these markers were education, professional prestige, and income, the most significant being education.

These data do not so much reflect a direct causality between economic status and Alzheimerís disease, but reveal factors that condition and determine certain lifestyles (such as nutrition), including the degree of stimulation of cognitive capacities throughout an individual's life. Higher levels of stimulation appear to produce a greater resistance to deterioration.

b) The educational factor: This factor has been widely studied. The general conclusion is that the lower the educational level, the higher the risk of Alzheimerís disease. In a study of 1,658 cases, Moritz and

Petitti (1993) reported an association between a more severe degree of illness and a low level of education, and suggested that a lower educational level also implies a later discovery of the illness. Kondo et al. (1994), in a study of 60 cases, and Bidzan, Ussorowska (1995), in their study of 90 Alzheimerís cases, also stressed low educational level as a major risk factor, along with other psychosocial elements. Ott et al. (1995), in the study run by the University of Rotterdam in a sample of 7,528 subjects, concluded that the risk of developing Alzheimerís disease is inversely proportional to level of education. They estimated that people who had not studied beyond primary education were four times more likely to suffer from Alzheimer's than those who had studied at university.

In a controversial study of 93 subjects, Snowdon et al. (1996) conclude that low linguistic ability in early life (mean age 22 years in autobiographical studies), was a predictor of poor cognitive function and Alzheimerís disease at later ages. Teri et al. (1997) stress the importance to successful aging of maintaining a level of cognitive ability that allows subjects to interact effectively and appropriately with the environment.

c) Level of social activity and relations: the level of social activity and life style have also been studied as risk factors. The studies by Kondo et al. (1990, 1994)[9] and Bidzan and Ussorowska (1995)[8], correlate low level of social activity with a higher risk of Alzheimerís. Shen (1992), in a study conducted in China of 126 diagnosed cases of Alzheimerís, also quoted a lack of interests as a risk factor. Similarly, Bauer et al. (1995), in a study of the biographies of 21 Alzheimer patients mention the loss of social contact and the loss of motivation as premorbid elements in these patients. In the study by Shimamura et al. (1998) of environmental factors in Alzheimerís dementia, among those mentioned are low degree of relation with neighbours, low participation in community activities, changes of residence, isolation, and living in families without children.

A lower level of physical activity also appears as a risk factor in some studies: Henderson et al. (1992) and the studies mentioned above by Kondo et al. (1990, 1994)[8] and Shimamura et al. (1998)[15].

3.- Life events and psychosocial stress as premorbid factors

We should state at the beginning that there is controversy about some of the life events believed to be potentially stressful - not because they do not cause stress in certain people, but because they do not always obtain a sufficiently high statistical correlation.

a) Life events. Bauer et al. (1995)[14], Shen (1992)[13], Shimamura et al. (1998)[15] all report the presence of negative life events prior to the development of the illness. Pecyna (1993), in a study of 73 patients, stresses psychological family crises as important elements in the etiopathogeny of Alzheimerís disease.

Jorm (1991) did not find any association with three major life events in older people: death of spouse, death of a child, and divorce. In a study of 2,612 people Hagnell et al. (1992, 1993) did not find any environmental factors to be statistically relevant, either for Alzheimerís dementia or for vascular dementia, although these authors did detect risk factors related to personality, which we will discuss later.

b. Theories of stress. These disparate results lead us to a comment on theories of psychosocial stress related to life events, in order to emphasize their virtues, but also their deficiencies. Following Lemos (1996)[5] and Sandin (1989, 1996)[4], we could say that the theory of stress took on relevance with the work of Seyle (1974). Seyle uses the term General Adaptation Syndrome (GAS) to refer to the non-specific changes produced by potentially stress-causing life events, i.e. those that surpass the organismís resistance threshold. In this interaction between external and internal factors of the individual the following elements can be identified: a) Environmental or stressful events, which act as stimuli for the activation of psychophysiological responses, b) Cognitive-affective dimensions, relating to the interpretation that the individual makes of the environmental events and of his/her responses, and c) coping, prior to the pathological activation, i.e. the appropriacy of modifying the range and level of this activation, changing the environment or the subjectís cognitive interpretations of these circumstances**.**

Theories of stress are an important step forward, in that in the emergence of a somatic impairment, they relate the individualís responses to external events that act as stimuli. Nonetheless, a number of elements

complicate this relation. Emphasizing the objective capacity of the stressful stimuli - the life events - implies, to an extent, ignoring all the variable aspects of the human personality, which determine that experiences have their own significance in each individual and that the activation threshold of psychosomatic alterations also depends on individual characteristics. The disparity in the studiesí reports of the correlations between the events considered as risk factors and the illness itself is hardly surprising.

In addition, in our view, the experience of a particular event does not depend only on cognitive configurations - as the theories of stress would have it - but on broader constellations of the personality that include cognitive and emotional factors. In a previous study, Conde (1996), we commented on the similarities and differences between Piaget and Freud and the interaction between cognitive and emotional abilities; referring to a striking text of Piaget's (1966) - which is fundamental to our theory even though it is relatively undeveloped - we stated that "... what triggers the cognitive mechanism is an energetic charge linked to the emotional world".

This second element leads us to prioritize the exploration of the structure of the personality in our attempt to identify risk factors for Alzheimerís disease. Our aim is to be able to define premorbid profiles of risk, and to assess in relation to these profiles the impact of a set of life events that are inscribed in a broader frame: the perspective of old age as a specific stage of the life cycle, in which every individual must inevitably face change and loss.

4.- Premorbid personality as a risk factor

In recent years there has been a notable increase in studies of the premorbid personality. For the benefit of our analysis and discussion we will highlight:

a) Continuity and change between pre-morbid and post-morbid states. Some studies underline the change produced with the onset of the illness, while others emphasize lines of continuity in the basic domains of personality. In spite of the differences, these results are not necessarily contradictory, since they usually refer to different aspects. The principal discrepancy is found in the continuity or lack of continuity of serious alterations between pre- and post-illness states, not so much in the continuity in basic traits.

As regards changes, Petry et al. (1988, 1989), concluded (in the first study) that Alzheimer's patients are more passive, more hostile and less spontaneous as a result of their illness. Bozzola et al. (1992), who also analyzed changes in a sample of 80 patients, reported diminished initiative/growing apathy (61.3%), relinquishment of hobbies (55%) and increased rigidity (41'3%), as the most common personality changes.

Comparing premorbid and present personality using Costa and McCraeís NEO-PI (1985) of the five basic domains of personality, a number of studies present very similar results. The changes in these basic aspects can be summarized as higher neuroticism, and lower extraversion and conscientiousness. The other two domains, openness and agreeableness, show smaller reductions, which at times are not significant.

	Neuroticism.	***Extravers.***	***Opennes***	Agreeable	Conscient.
Siegler et al.(1991,1994)	+	-	-	-N.sig.	-
Chatterjee et al. (1992)	+	-	-N.sig	-N.sig.	-
Strauss et al. (1994)	+	-	.....	.....	-
Welleford et al. (1995)	+	-	-(lower)	-(lower)	-

Other authors tend to stress the continuity between pre- and post-morbid profiles. Petry et al. (1988)[33], notes the changes but stresses the continuity of the basic profiles of the premorbid personality. Kolanowski et al. (1996, 1997), in a review of studies of personality changes, notes that although there

are systematic personality changes in subjects with dementia, the individuals appear to maintain their model of premorbid personality traits. In this regard, the personalities of patients with dementia appear to reflect models of adaptation that were used in the past; there is a correspondence between pre- and postmorbid conducts. In a longitudinal study of 26 patients, Montani (1994) found no psychological history; however, he underlines the basic personality in the manifestations of dementia. Péruchon (1994) also stresses the influence of the premorbid personality in manifestations of dementia; she notes that the productions of dementia (hallucinations, interpretative tendencies, verbal imitations), appear to take shape on what remains of the patientsí potentialities and defences.

Regarding the appearance of serious personality disorders, Chatterjee et al. (1992)[27] report that particular traits of the premorbid personality predispose subjects to the psychiatric symptoms of Alzheimerís disease. Baker et al. (1991), in a study of 122 cases, found that 39 (32%) had psychiatric history in the three years prior to the onset of the illness.

However, other authors have not observed this correspondence. Comparing a group of Alzheimerís patients with a group of Huntingtonís Corea patients, with a similar degree of irritability, Burns et al. (1990) observed that the premorbid trait of irritability was valid for Huntington sufferers, but not for Alzheimerís. Rosen and Zubenko (1991), in a longitudinal study of 32 patients, also reported that the emergence of psychosis (47%) and major depression (22%) in the course of the illness was not related to psychiatric history prior to onset.

b) Depression as a risk factor. Jorm (1990-1994)[1], in his book “The Epidemiology of Alzheimerís Disease and related disorders“, reported four case-control studies in which depression was found to be more common in Alzheimerís cases than in controls: Barclay et al. (1985), French et al. (1985), Shalat et al. (1987) and Broe et al. (1990). Jorm interpreted these results to state that these symptoms could be confused with the initial manifestations of dementia, which are usually coincident with depression.

Other later studies confirm the importance of depression as a premorbid element. Among more than 20 risk factors, Kokmen et al. (1991) found that episodes of depression and personality disorders were significant. Jorm (1991)[18] also found a history of depressive episodes, though related to late onset cases. Chatterjee et al. (1992)[27] reported that in the premorbid personality of Alzheimerís patients there were more depressive traits. Henderson et al. (1992)[16] and Speck et al. (1995) found a history of depressive episodes occurring ten years prior to the onset of illness. Van Duijn et al. (1994) in a study of 814 subjects and Tsolaki et al. (1997) in a study of 65 patients also found a significant history of depression. It thus appears that depression is widely held to be a risk factor, either because patients experience it personally or because there is a family history of it.

c) Other risk factors in the premorbid personality. Just as there are no premorbid profiles defined for cardiovascular illnesses or cancer, there is no consensus on risk factors for Alzheimerís in the premorbid personality. Research into the area has grown significantly in recent years, although the lack of clarification persists. At least three studies which clearly argue for the existence of risk factors in the premorbid personality.

The first is by Hagnell et al. (1992)[19]. The principal researcher, a psychiatrist at the Dept. of Social and Forensic Psychiatry at the University of Lund (Sweden), in a broad study performed in a population of 2,612 people, conducted two trials with an inter-trial interval of 15 years (1957 and 1972). She did not detect any environmental factors associated with Alzheimerís disease, although she did find background factors of the personality which correlated significantly with the illness. Patients presenting these factors were defined as personalities ìin need of protection”.

The second study is by Bauer, J. et al. (1995)[14] of the University of Psychiatry in Freiburg, Germany. The authors analyzed the biographies of 21 patients with Alzheimerís disease and compared it with 12 patients of similar age with vascular dementia as control group. In the profiles of premorbid personality of the Alzheimerís patients there was a predominant proportion of “conflict-avoiding, submissive” subjects with a tendency to leave important life-decisions to their partners, under ìcaring tutelage” and “restrictive treatment”. In contrast, the premorbid personality traits of patients with vascular dementia were “assertive and dominant”: they were characterized by a loss of control that they had hitherto exerted over partners, their families, or the situation at their workplace.

Finally, the study by Malinchoc et al. (1997), at the Dept. of Research in Health Sciences at the Mayo Clinic, Rochester (U.S.A.) is a study of 13 cases of Alzheimerís patients and 16 controls administered the MMPI. There was an interval of thirteen years between the study of the personality and the onset of illness in the Alzheimerís patients (or corresponding age for the controls). The Alzheimerís patients had higher rates of social intraversion and pessimism with respect to the testís reference guidelines. In the comparison with the control group, the rate of “intraversion” was significantly high.

In summary, the need for protection or tutelage, dependence on others, restricted social and interpersonal relationships, intraversion, lack of mental energy, are the most frequently mentioned traits in studies of premorbid personality. It is clear that all these elements are not only not contradictory but bear a close relation to each other. They also coincide to a large extent with the authorís hypothesis (Conde, 1996)[31], regarding the characteristics of the premorbid personality which are risk factors for Alzheimerís dementia, and which the author situates in the emotional field: the symbiotic relation with the partner, fragility of the personal identity, insufficient mental elaboration in the face of the effects of the aging process.

5.- Conclusion

This article seeks to gather together data from the principal studies on the risk factors in Alzheimerís disease, focusing on those that refer to the premorbid personality. It is described as preliminary because it is the forerunner of a fuller project that is currently underway.

The initial formulations of the study and the hypotheses on which it was to be based were defined two years ago. They are presented in an unpublished text entitled “Psychology, old age and groups. Discussions for the elderly”, in the chapter "Neuropsychological skills and deficits". The study grew out of our observations in our professional involvement in recent years, in a range of activities with elderly individuals (Conde): a) Discussion for the elderly: group reflection on the aging process (1988-1997). b) Emotional support for families with old members with dementia (1991-... ...). and c) Workshops on memory (1997-... ...)

The hypotheses formulated there were excessively abstract for an empirical study. They needed to be made more concrete, more operational, in order to detect profiles, situations, and behaviours that can be profitably analyzed. These hypotheses refer to the processes of desubjectivization and regression that accompany dementia, in the context of a mental inability to elaborating aspects and situations in the aging process, and which are found in particular mental structures, with an ego that is debilitated and/or sustained symbiotically by a partner. We hope that before long we will able to publish the full project.

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