Simultaneity perception disentangle different kinds of schizophrenic disorders

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Introduction

Discriminating two closed events in time has been showed to be disordered in schizophrenia whatever the modality (visual, auditory, bimodal). It has been especially associated with thought disorganization and hallucinations[1].

However schizophrenia is a "melting-pot syndrome" maid of different diseases. Although these still unknown, the differentiated nosology of Karl Leonhard[2] has been shown to describe disorders of different prognosis, therapeutic response, aetiology and anatomical imaging[3]. Of the 35 major psychotic pathologies described by Leonhard, 24 correspond to schizophrenia and schizo-affective disorders. They are clustered in 3 families approximately sharing the same properties : cycloid psychosis, non systematic schizophrenias and systematic schizophrenias (see table 1).

The authors of the DSM4R claim that schizophrenia, schizo-affective depressive and schizo-affective bipolar could be different pathologies because of their different prognosis.

We aimed to compare the performances in simultaneity perception according to both nosological system to see whether one could be more predictive than the other which would plead for a better validity.

Table 1

	Evolution	Therapeutic response	Etiology				Anatomical imaging
			Heredity		Ontogenic event		
			% of first degree relatives affected by the same psychosis	Twins concordance	Saisonality	Viral affection during pregnancy	
Cycloid Psychosis	Remitting	Excellent to benzodiazepine, lithium ± neuroleptics	~ 5%	36 % MZ vs. 31 % DZ	Yes	15%	Ventricular enlargement
Non systematic schizophrenia	Polymorph and progressive	Good to neuroleptics ± lithium	12 to 25%	86 % MZ vs. 27 % DZ	No	7%	Frontal atrophy
Systematic schizophrenia	Monomorph and progressive	None to moderate to neuroleptics	~ 2%	no MZ vs. 0% DZ	Yes	36%	Ventricular enlargement and temporal atrophy

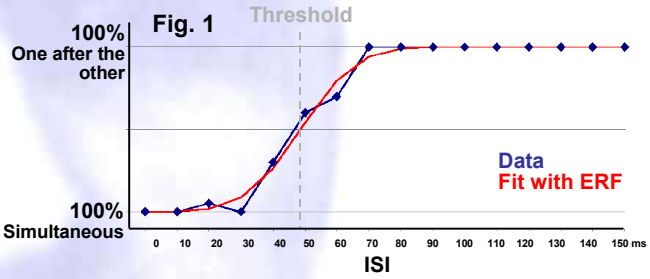
Method

We recruited 38 stabilized schizophrenic or schizo-affective patients according to the DSM4R and classified them according the two nosographies. A group of 35 matched controls was also included.

Subjects were required to press one of two buttons according to whether they perceive both visual stimuli simultaneously or one after the other. Trials were randomised for the inter stimulus interval (ISI) ranging from -150 to 150 ms. The simultaneity threshold corresponds to the ISI beyond which the subject respond one after the other more than 50% of the time (see fig. 1).

An ANOVA was performed on the groups defined by the DSM and another on the one defined by Leonhard's classification. Between groups differences were assessed with an LSD test.

Fig. 1



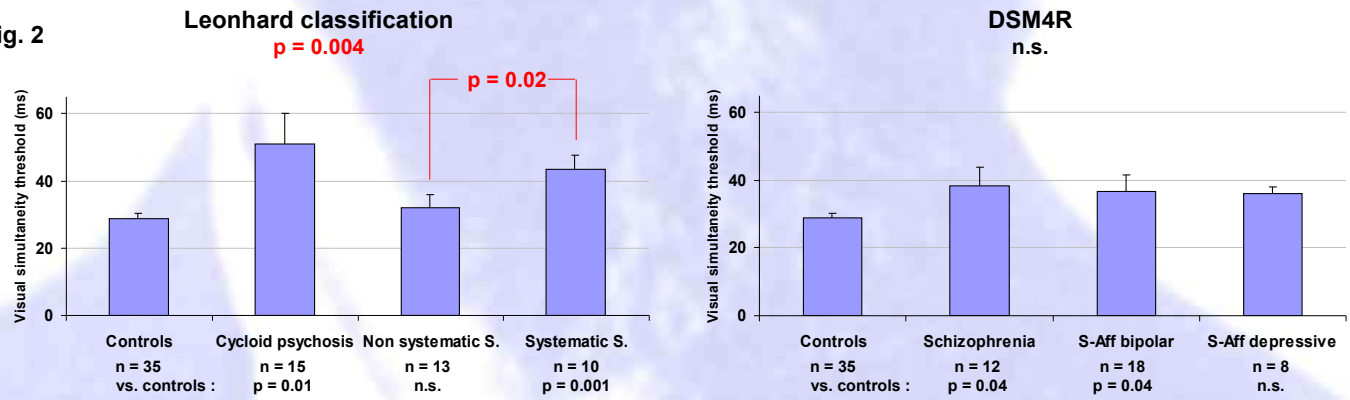
Results

Our results show that time resolution is different among Leonhard diagnosis ($F_{1,69} = 4.8$, $p = 0.004$) but not among the current DSM4R diagnosis ($F_{1,65} = 2.4$, $p = 0.07$) (see fig. 2).

Systematic schizophrenia show up with significantly poorer time resolution relative to the non-systematic group ($p = 0.02$). Cycloid psychosis only tend to differ from the non-systematic group ($p = 0.09$). Both cycloid psychosis and systematic schizophrenic patients had significantly poorer time resolution relative to controls ($n = 35$) (all $p < 0.02$), whereas those of the non-systematic group were similar.

According to the DSM, none of the patients groups comparisons showed up with a trend (all $p > 0.1$). Only the schizophrenia and the schizo-affective bipolar were different from the controls.

Fig. 2



Conclusion

Accordingly, patients who better fit as a neuro-developmental disorder (cycloid psychosis and systematic schizophrenia), appeared distinct relative to the groups that better fit as an hereditary disease (non-systematic schizophrenia).

The next international classification systems (DSM5 and CIM11) will not change the actual categories but supplement them with a dimensional evaluation. However one should keep in mind that the medical model rely on the description of diseases, not continuums. In this lines, this study comes with other to support the validity of the Wernicke-Kleist-Leonhard approach rather than the consensus based classifications.

References

1. FOUCHER, J.R. et al. (in press): « Low time resolution in schizophrenia Lengthened windows of simultaneity for visual, auditory and bimodal stimuli ». Schizophr Res.
2. LEONHARD, K. (1999): « Classification of endogenous psychoses and their differentiated etiology, Second, revised and enlarged edition ». Springer Verlag – Wien
3. FOUCHER, J.R. (in preparation): « 35 psychoses : la classification des psychoses endogènes de Karl Leonhard – synopsis et revue des travaux »