Risk factors in psychiatric comorbidity of epilepsy. Prospective study two years after epilepsy onset.

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Introduction

1)EPIMEDIOLOGICAL STUDIES:

1. Studies confirm high rates of psychopathology in children with epilepsy [1]. A systematic review published between 1996 and 2007 reported prevalence rates between **37% and 77%.**
2. Children with epilepsy have higher psychiatric comorbidity and worse quality of life compared with the **General Pediatric Population** [2] and compared with **children affected by other Chronic Diseases** [3].
3. The psychiatric disorders most frequently diagnosed are :
   ADHD: 12-30%[4]; Anxiety Disorders: 36%[5]; Depressive Disorders: 5.2 to 39.6%[6]; Social Relation Problems: 23-40%[7]

2)ETIOPATHOGENETIC STUDIES:

A. Neurological basis: changes in volumetric imaging studies [8].
B. Predictive variables and risk factors. Two many lines of thought:

1-Epilepsy Related Factors
(eg seizure frequency, epilepsy severity, AED)[9]
2-Demographics, Neuropsychological And Psychosocial Factors[10]

3) BIDIRECTIONAL HYPOTHESIS : EPILEPSY – PSYCHOPATHOLOGY

C.1 Psychopathology often precedes the onset of epilepsy with/without a history of Transient Cognitive Impairment (TCI): Community Studies5
C.2 Psychopathology as risk factor for epilepsy: Epidemiological Studies11
C.3 Neurobiological theories

Epilepsy and Psychopathology → ***COMMON NEUROBIOLOGICAL DAMAGE ?***

Research Project

STUDY DESIGN

Prospective, with a two years follow-up and six-monthly visits.
Approved by the competent Ethics Committee.
Eligible: Children and adolescents (age 4-18) with new-onset epilepsy, normal or borderline IQ (>70), and no other chronic illness; plus their parents.
Assessment:
- Psychopathological and cognitive screening;
- Temper assessment and detection of family factors;
- Assessment by interviewing both children and parents;
-Analysis of health related-quality of life (HR-QOL) through a specifically validated questionnaire.

AIM

to find a relation between the onset of epilepsy and the development of any psychopathology in children accessing the Italian NHS after the first seizure.

SAMPLE

246 pts consecutively attended **between June '11 and June '13; 130 recruitable; 77 consented by telephone; 49 were visited** at T0

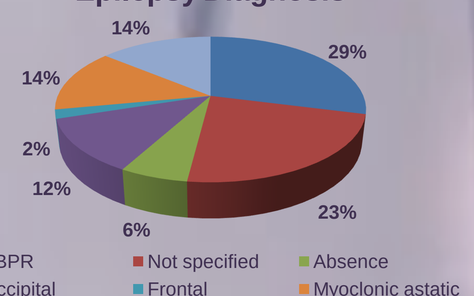
METHODOLOGY AND TOOLS

Six-monthly psychiatric and psychological assessment:
- Screening questionnaires for psychopathology (CBCL, YSR), Cognitive Level (CPM/SPM), Temper (QUIT);
- Clinical interviews for psychopathology (K.SADS-PL, C-GAS);
- HR-QOL questionnaire "Epilessia e Bambini"
- Analysis of family factors (PSI and FES);
- Detection of alexithymia (TAS-20 for children and adolescents);
- Others specific psychometric tests when appropriate

Distribution of Sample

INCLUSION CRITERIA:
- Age > 4 aa; < 18aa
- Diagnosis of epilepsy within 6 months
- IQ >= 70
- Absence of Pathology Chronic non-neurological

Epilepsy Diagnosis



Descriptive variables

Demographic var.	F	Psicosocials var.	F	Epilepsy var.	F
M	55%	School Prob	22%	Unic seizure	35%
F	45%	Family Probl	12%	≤ 1 seizure/m	24%
Mean Age	9,6 aa	traumas	47%	> 1 seizure/m	41%
St. Dev.	3,3	Familiar. Psychiatric	32%	Duration< 1'	37%
Parents marr.	90%	One parent	10%	≥ 1' < 5'	49%
Caucasians	96%	Low SES	23%	Dur≥ 5'	14%
Brothers	86%	Medium SES	41%	Familiar Epilepsy.	33%
Adoptions	2%	High SES	37%	AED Politherapy Side Effects	47% 4% 10%

Epilepsy by Etiology	%
Idiopathic	69%
Probl Syntomatic	10%
Syntomatic	4%
Not specified	16%

Epilepsy by Localization	%
Focal	69%
Generalized	24%
Not specified	6%

Results

A. EPILEPSY

T0 → prevalence of idiopathic focal epilepsy;
→ diagnosis prevailing EBPR and not specified
Follow up T24 → Sample 37 families (drop out 24%)
→ no difference to the distribution of epilepsy
→ reveals that about 90% of pts reduces seizure frequency as well as seizure duration, with minimal changes in drug therapy.

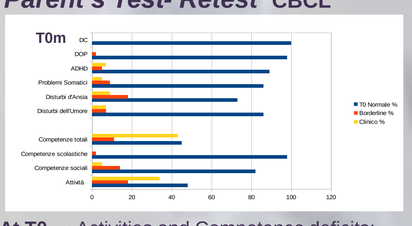
Seizures duration	T0	T24
<1 min	37%	11,4%
≥ 1 min < 5min	49%	2,8%
> 5 min	14%	0%

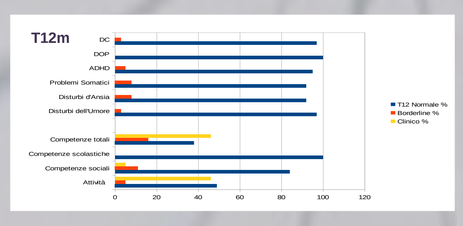
Seizures frequency	T0	T24
0	0	85,7%
≥1/month	59%	11,4%
<1/month	41%	2,8%

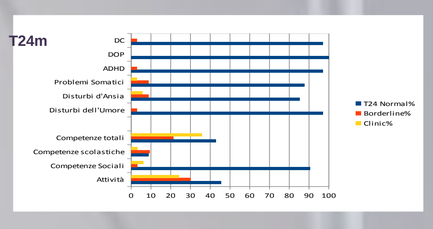
Drugs	T0	T24
AED	45%	39%
Politherapy	4%	2,7%
Side effect	10%	0%

B. PSYCHOPATHOLOGY

Parent's Test- Retest **CBCL**

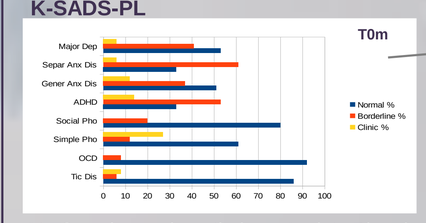


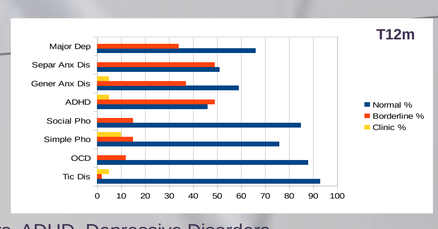


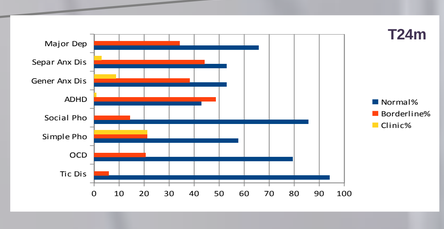


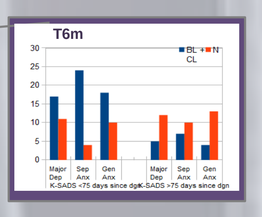
At T0 → Activities and Competence deficits;
→ prevalent psychopathology: Anxiety Disorders, Affective Disorders, ADHD, and Somatic problems
Follow-up to 24 m: to T12 → worsening Activity (Freedman = 58.9, p = 0.004) → worsening Competence (Freedman = 45.13, p = 0.02) improving to T24 reduce psycho patology : Aggressive Behauvior (t=2,42 p=.022) Internalizing Problem (t=3,17 , p= .004) Affective Disorder (t=2,48, p=.019) ADHD (t=2,30, p=.029)

K-SADS-PL









At T0: main psychopathology: Anxiety Disorders, ADHD, Depressive Disorders.
Follow-up to 24 m → reduced psychopathology: to T12 significant for ADHD (Freedman = 66.12, p = 0.01) and for Generalized Anxiety Disorder (Freedman = 60.2, p = 0.02); to T24 for Separation Anxiety Disorder (Wilcoxon z=.029) and OCD (Wilcoxon z= .03)

Between T0 and T12 : Lower incidence of internalizing symptoms in patients evaluated long after new onset epilepsy

Children 's Test- Retest

YSR

T0	F	T12	F	T24	F
Total C	25%	Total C	33%	Total C	35%
Activities	17%	Activities	17%	Activities	16%
		Social Rel	6%	Social Rel	6%
				Intern. Probl.	5%
				Extern. Probl.	5%

T0 to T12: Activities and Competences worsen
Follow up T24: → Still worsening Activities an Competence
→ Internalizing and Externalizing symptoms appears at t24

K-SADS-PL

T0	F	T12	F	T24	F
Simple Ph	22%	Simple Ph	11%	Maniac. Ep.	4,35%
Bipolar D	6%	Separ Anx	6%	Gener. Anx	21,74%
		Major D	11%		
		Psychosis	6%		

T0 to T12: persistent Simple Phobias with widened psychopathologic spectrum
Follow up to T24: significant increase of Generalized Anxiety Disorder

QOL "Epilessia e Bambini"

Factors QOL	T0	T12	T test	T24	T test
Mood	euthimics	Signif. Improv.	t= 2,34; p=0,012	Signif. Improv.	t= 2,75 p=0,005
Optimism	Average	Signif. Improv.	t=3,39 p=0,001	Improv.	
Relations	Averege	Improv.		Improv.	
Social skills	Averege	Improv.		Signif. Improv.	t=1,84 p= 0,03
School	No probl.	Improv.		Improv.	

Follow up T12: the responses attributable to life factors indicate a Good QoL in all children expecially for mood and optimism; worst in those with psychopathology;
Follow up to T24 → General improvement expecially for mood and social skills

C. Correlation Analysis

1) COMPARISON BETWEEN SELF-REPORT AND PROXY-REPORT

Achenbach questionnaires compiled by parents report more psychopathology compared to children. No significant differences detected between parents and children K-SADS-PL. Hence the different diagnostic value of the two instruments: Achenbach for screening, K-SADS-PL for diagnostic assesment by the clinician.

2) PSYCHOPATHOLOGY

Psychopathology significantly correlates with demographic / psychosocial / epilepsy-related variables.

3) QUALITY OF LIFE

Quality of Life (particularly in the academic domain) significantly correlates with both demographic / psychosocial / epilepsy-related variables and psychopathology.

Demographic and Psychosocial factors	Clinic/Border scores CBCL, K-SADS-PL
Male sex	Major Deprex.;Anxiety disorder
Familiarity for Psychiatric	School Competence, Anxiety Disorder
Monoparental Family	Internalizing Problem; Mood Disorder; Social Probl.; School Competence
School problems	Social Probl., ADHD, Attention Probl.

Epilepsy related factors	Clinic/Border scores CBCL, K-SADS-PL
Generalized Epilepsy	ADHD; Tic
Idiopatic	Major Deprex
AED	Attention Probl; ADHD; Esternalizing Probl.
Sezure frequency >1/month	ADHD; Tic
Sezure duration > 1 min	Tic; Thought Probl;ODC

Follow up T24: the persistence of these associations confirms the hypothesis that these variables can have predictive value

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Conclusion

Among the psychosocial variables (problems at school, disease within the family and psychiatric familiarity) we found a predictive value for psychopathology and poor quality of life. The lower incidence of internalizing symptoms after new onset epilepsy, and the improvement of psychopathology at 12 months follow-up, suggest a reactive component in the coming out and/or development of psychopathology in these children. Actually, new onset epilepsy can be a stressful event, such as to interfere with the individual and family balance, especially in vulnerable circumstances. We also identified some epilepsy related variables as risk factors for psychopathology and poor quality of life. Having detected clinically evident psychiatric disorders at the onset of epilepsy in many cases, we cannot rule out if they were pre-existing. This set of data, together with the many correlations emerged, reveals the complex relationship between epilepsy and psychopathology, and leads us to assume the possible existence of a neurobiological damage as additional common factor. All above considerations, together with the results about the indication for psychological treatment and its outcome 24 months later, confirm the importance of a global care in order to formulate a multidisciplinary intervention designed to take properly care of the child and his/her family, also in consideration of different stages of the disease.