Psychiatric problems related to epilepsy surgery

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Brno, 21.3.08

Patients' Expectations of epilepsy surgery

Patients' Expectations of epilepsy surgery

WHO-Definition of Health

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946

Epilepsia, 47(5):928–933, 2006
Blackwell Publishing, Inc.

Normalization of Quality of Life Three Years after Temporal Lobectomy: A Controlled Study

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Summary: *Purpose:* The goal of epilepsy surgery is not merely to control previously intractable seizures, but also to improve quality of life (QOL). Our goals were to assess, in our Middle Eastern population, the QOL of adults with temporal lobe epilepsy (TLE) 3 years after temporal lobectomy as compared with matched TLE patients who did not undergo surgery and with healthy individuals in the same community.

Methods: Twenty consecutive TLE patients who underwent temporal lobectomy 3 years previously were matched in the following variables: age, sex, seizure frequency, seizure duration, age at onset of epilepsy, duration of epilepsy, and number of medications, with 17 TLE patients who underwent the presurgical evaluation and subsequent optimization of medical therapy but did not undergo surgery. They were also matched for age, sex, educational level, income, and residence with 20 healthy individuals. All groups were interviewed by using the ESI-55 questionnaire.

Results: Compared with the nonsurgery group, QOL was significantly better in the surgery group (85% seizure free) in the well-being, functioning, and role-limitation domains. QOL was similar in the surgery and healthy control groups in all domains and scales. The nonsurgery group scored significantly lower than healthy controls in the functioning and role-limitation domains.

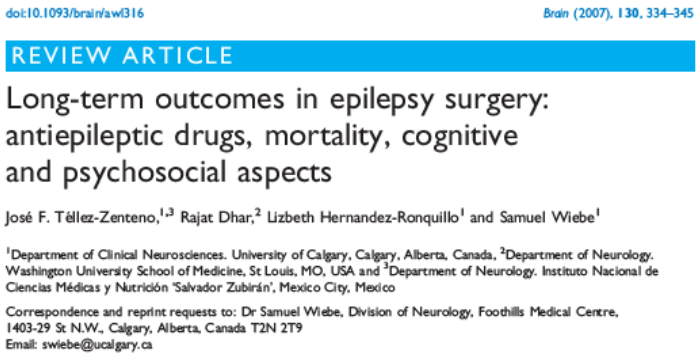
Conclusions: Intractable TLE was associated with marked impairments in QOL despite continued attempts to optimize medical therapy. Three years after temporal lobectomy QOL in our patient population achieved levels similar to those of matched healthy individuals. To our knowledge, this is the first study to report normalization of QOL after temporal lobectomy, in any population. **Key Words:** QOL—temporal lobe epilepsy—Lobectomy.

Mikati et al. Epilepsia 2006

Three years after temporal lobectomy QoL of patients after epilepsy surgery (n=20) was compared to QoL of matched healthy controls (n=20) and of medically treated nonsurgery patients (n=17).

"QoL was similar in the surgery and healthy control groups in all domains and scales. The nonsurgery group scored significantly lower."

Good news: Health in its complex sense may be in reach after surgery!



doi:10.1093/brain/awl316 *Brain* (2007), **130**, 334–345

REVIEW ARTICLE

Long-term outcomes in epilepsy surgery: antiepileptic drugs, mortality, cognitive and psychosocial aspects

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Tellez-Zenteno et al. Brain 2007

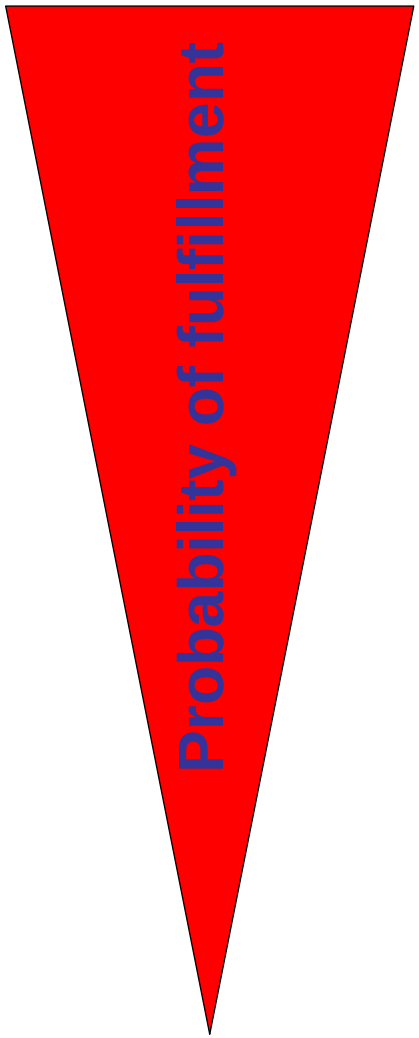
Meta-analysis of studies on the *longterm, non-seizure outcomes* after ES
(quality of life, educational and employment status, interpersonal relationships and social behaviour)

"Non-controlled studies consistently reported improved long-term psychosocial outcomes, but the effect was less clear in controlled studies."

There may be a tendency (of patients as well as doctors) to gloss over the facts: Such a costly operation must have been a success!

Expectations of Patients

Health domains
Physical *seizure-stop* mobility
Mental *mood* *concentration*
Social *friendships* *vocational satisfaction*

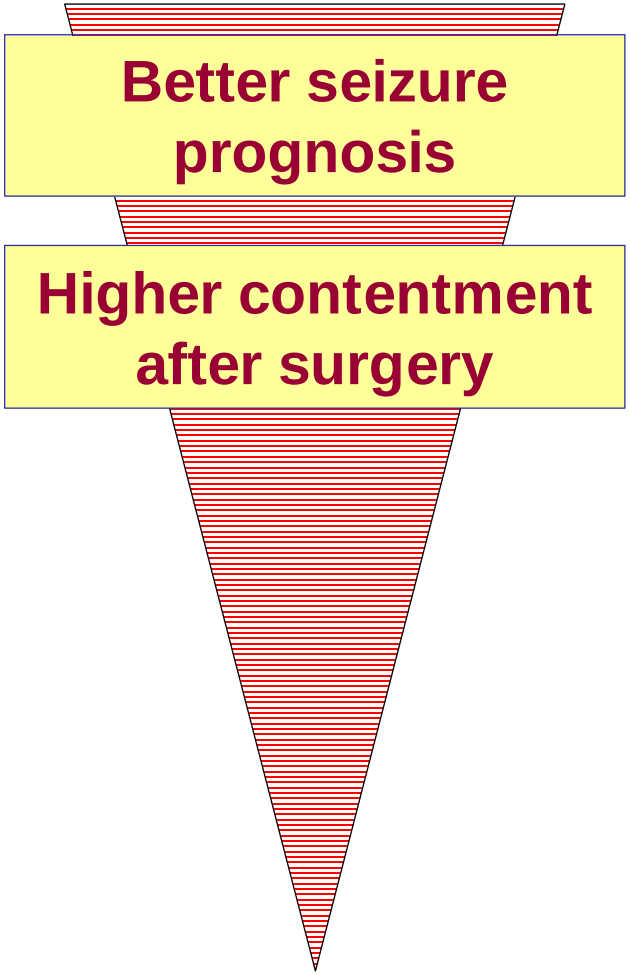


Change Expectations

Pts. with change expectations in *practical domains*, (e.g. drivers' licence, improvement in daily activities)

…compared to

Pts. with expectations of *complex changes* (e.g. psychosocial affaires, new friendships)



Wilson et al. (1998)

Change Expectations

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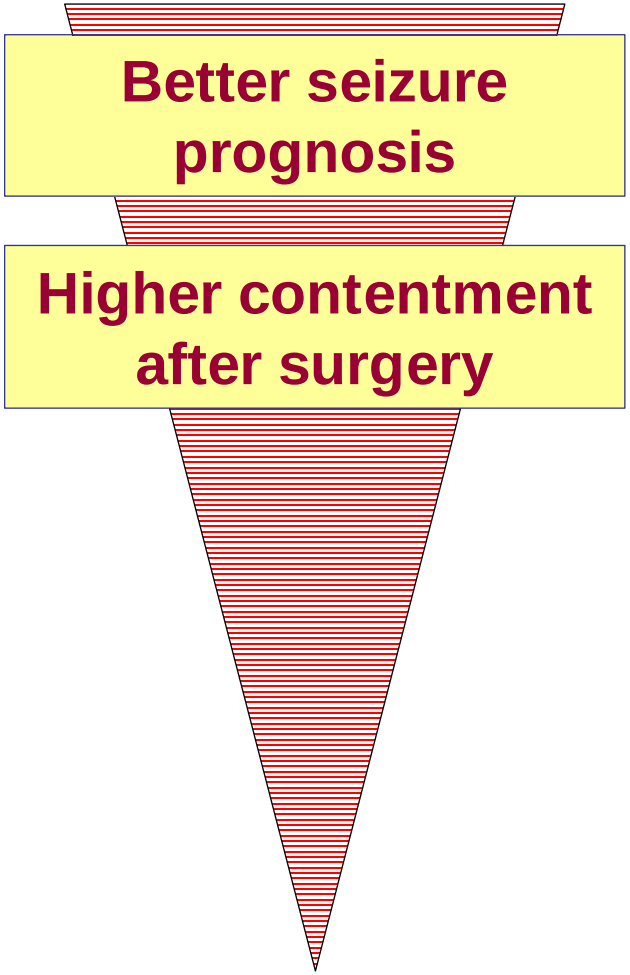
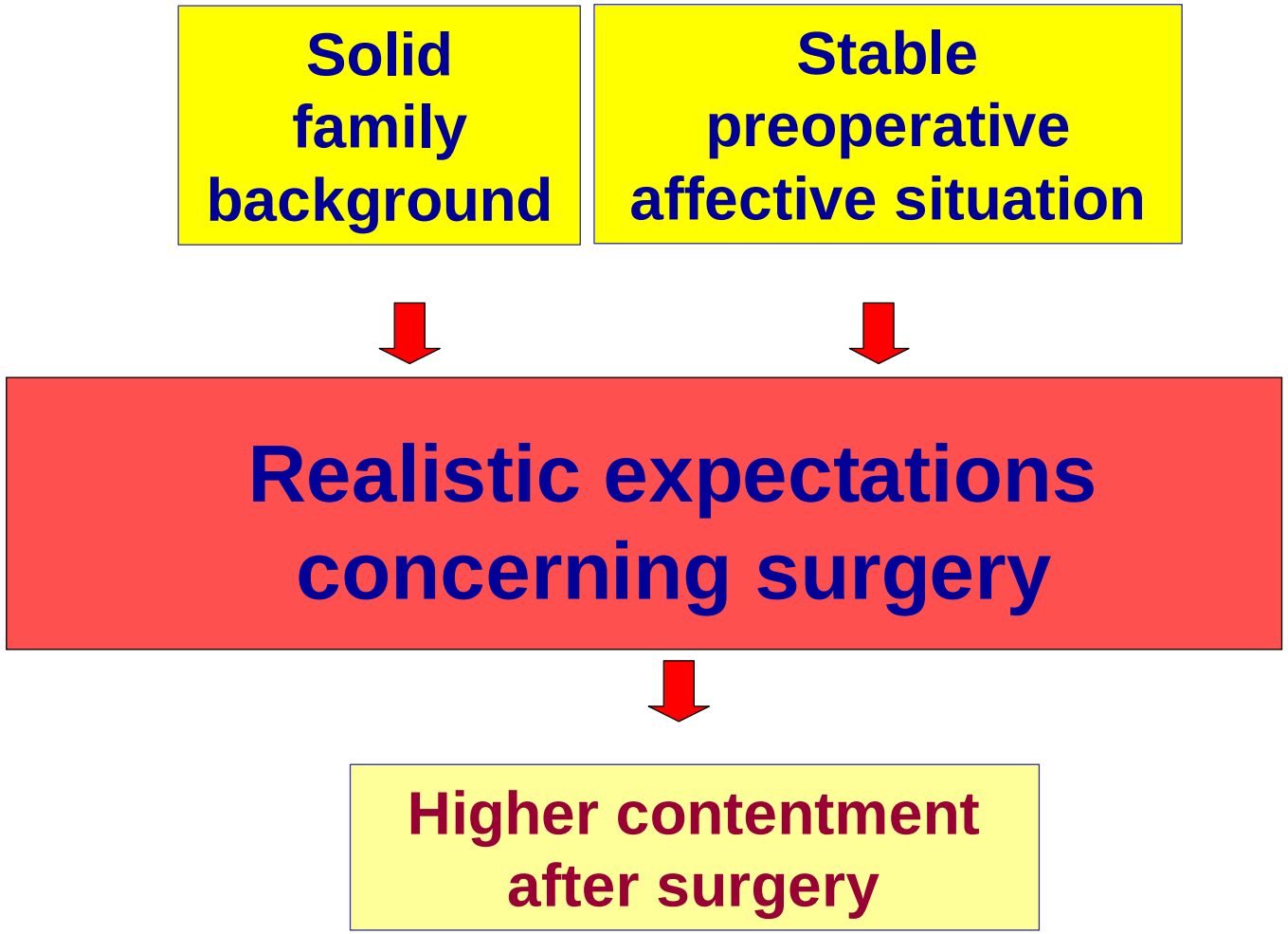


Wilson et al. (1998)

Predictors of realistic change expectations

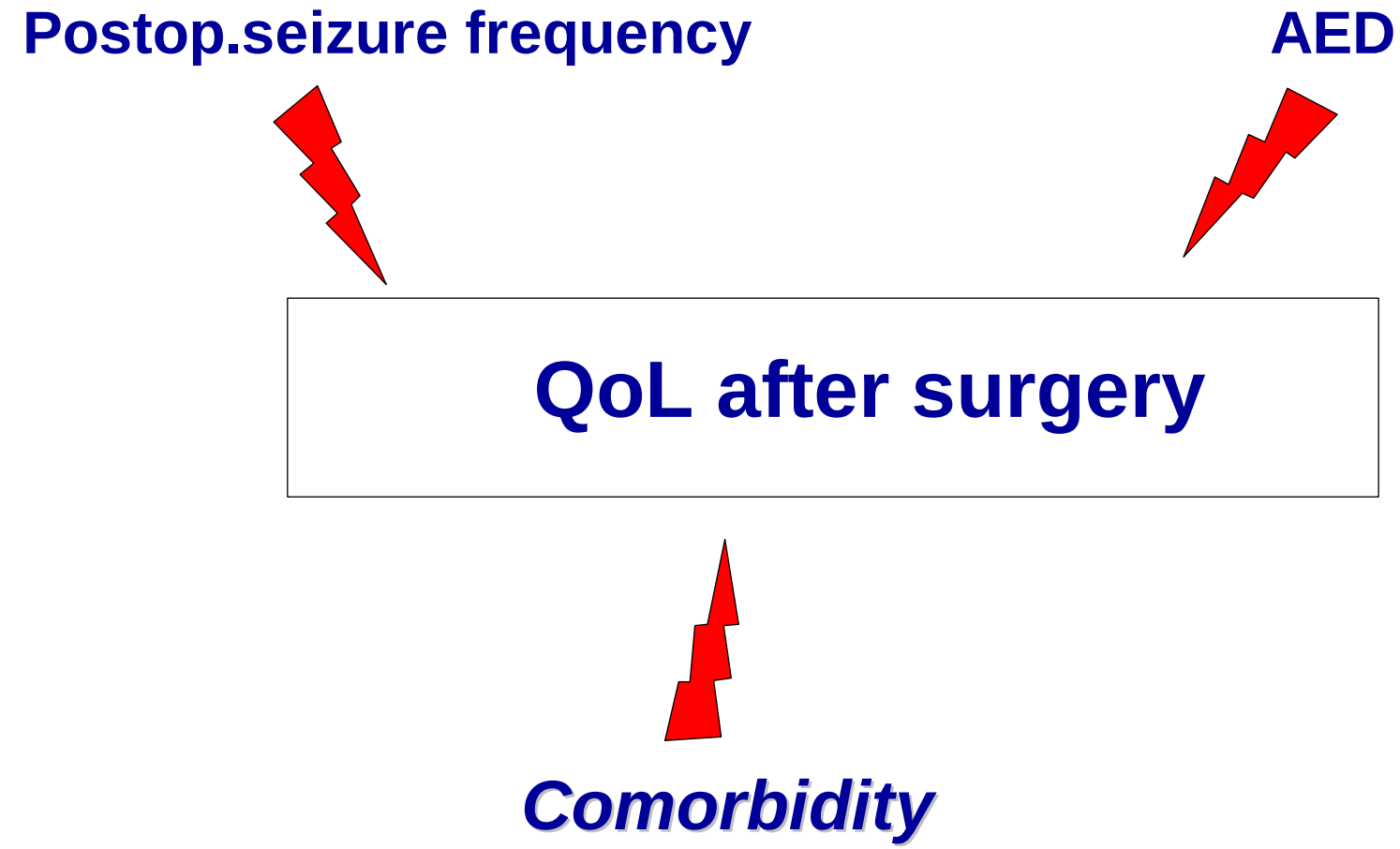


Wheelock et al. (1998)

Derry & Wiebe (2000)

Aydemir et al., Epilepsy & Behavior 2004

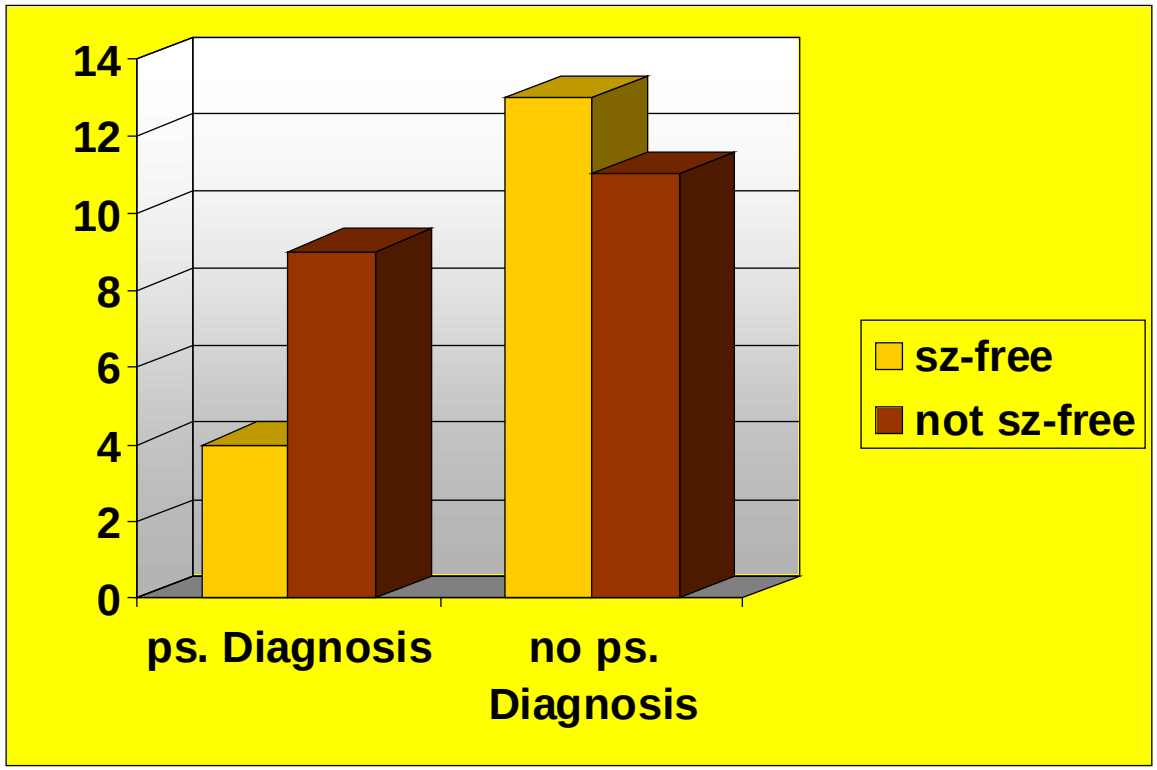
QoL of patients *after* surgery was found to be better than *before* surgery.
But there were some negative influences:



Psychiatric Comorbidity in Candidates for Epilepsy Surgery

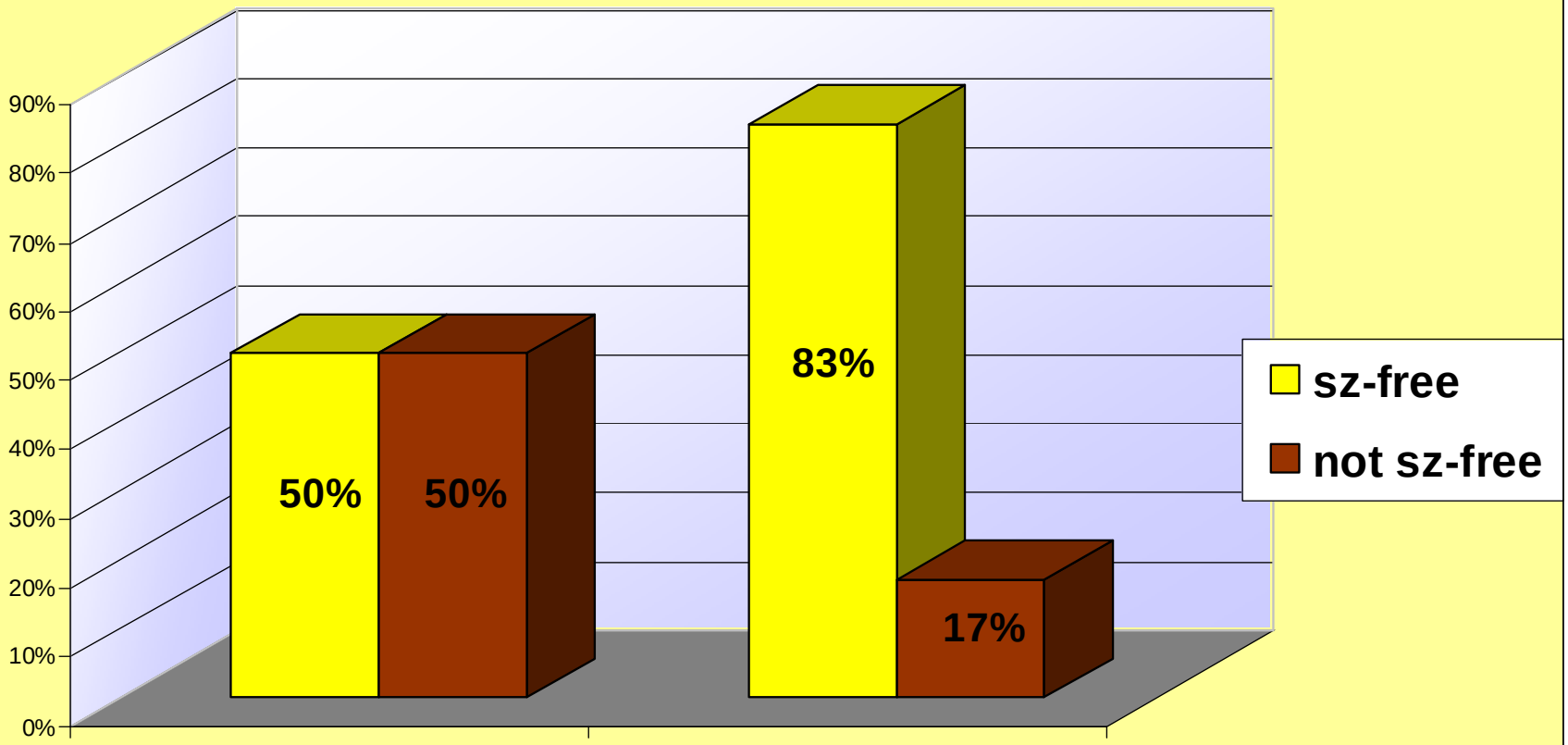
Jensen & Larsen 1979	> 80%
Polkey 1983	43%
Naylor et al. 1994	43% both pre- and postop; (35% preop)
Manchanda et al. 1996	47%
Ring et al. 1998	52%
Blumer et al. 1998	57%
Glosser et al. 2000	51%
Koch-Stoecker 2001 (own data of 100 patients)	43% psych. syndromes (Axis 1 DSM) (72% incl. Axis 2: personality disorder)
Inoue & Mihara 2001	35%
Malmgren et al. 2002	44,3%
Wrench et al. 2004	57%
Jones et al. 2005	49% (Axis 1) not only surgery candidates
Cankurtaran et al. 2005	27,3% (n=22)

Preoperative Psychopathology and Seizure Outcome



Naylor et al. 1994, 37 patients with surgery for mTLE

Preop. psychopathology and seizure outcome



Results of 191 pts. with TL-resection 6 months after surgery
own results, Bethel

Personality Disorders

Personality disorders are *enduring* patterns of thoughts, emotions, and actions which differ considerably from expectations of socio-cultural surroundings and lead to *impairment and suffering*

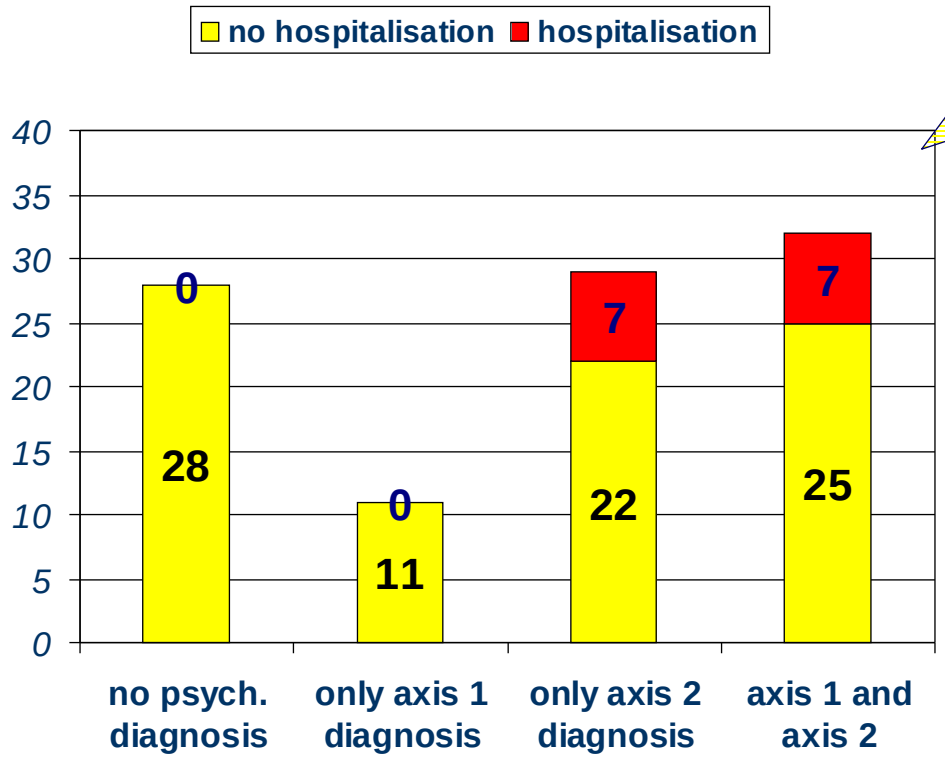
Personality disorders are caused by *organic dispositions* and negative developmental and *environmental influence*.

Personality disorders indicate a *high mental vulnerability* and compromise the brain's ability to combat stress.

Thus it may be hypothesized that patients with personality disorders are at a strong risk to suffer from postoperative psychiatric complications.

Personality disorders predict postoperative complications

During a follow-up period of two years after surgery *fourteen of 100* patients were admitted to a psychiatric hospital for different reasons (postoperative complications).



All 14 had personality disorders before surgery
(= no patient *without* PD was admitted!)
(p<0.01)

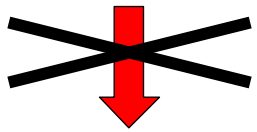
S. Koch-Stoecker (Epilepsy & Behavior, 2002, 3, 526-531)
"Personality disorders as predictors of severe postsurgical psychiatric complications in epilepsy patients undergoing temporal lobe resections"

Affective Disorders

About 80% of epilepsy patients are acquainted with depressive mood. (Mendez et al. 1986)

Depression, not seizure frequency predicts QoL in treatment resistant epilepsy. (Boylan et al. 2004)

Depression in epilepsy patients is atypical. (Blumer 1997)



Major depression (DSM IV):

Episodes lasting for two weeks and more:
severely depressed mood,
no interests, worthlessness...
„for most of nearly every day...“

Interictal dysphoric disorder

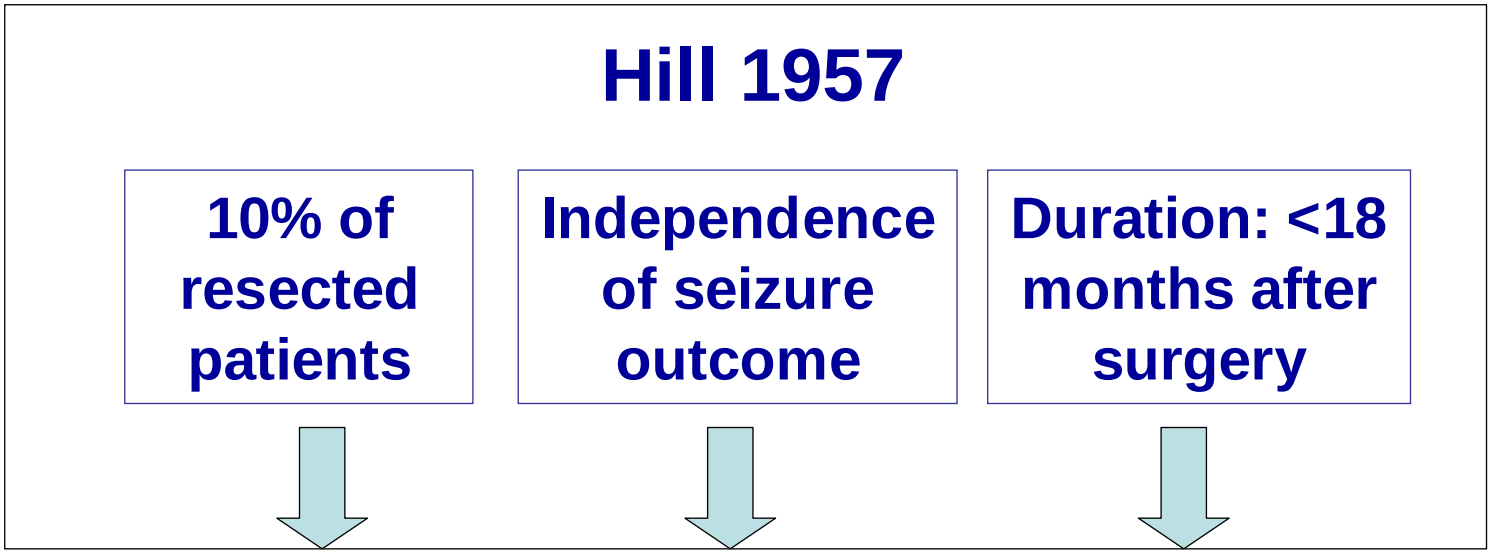
Depressed mood of brief duration (hours or days at maximum),
paroxysmal irritability,
short euphoric intervals,
atypical pains...

Postoperative Depression

Postoperative depression, evolving from early postoperative irritations, has the features of a major depression.

For most patients this kind of severe depression is unknown and frightening!

Postoperative Depression



- Naylor et al.1994: 8% AHE
- Ring et al. 1998: 17% (3 months po)
- Glosser et al. 2000: 8%
- Koch-Stoecker 2001: 9%
- Glosser et al. 2000
- Koch-Stoecker 2001
- Similar time-frame described by all working groups

Predictors of Postoperative Depression: Morphology

Bruton 1988:

Preferred incidence of depression after surgery in ***hippocampal sclerosis*** or in nonlesional epilepsies

***Anhoury et al. 2000*:**

Good psychiatric outcome associated with ***developmental lesions*** (marginally significant)

Poor psychiatric outcome was positively associated with preoperative ***bilateral independent spike discharges*** at telemetry.

Size of resection positively correlated with postop. emotional lability

Predictors: Laterality

- ***Bruton et al. 1988*:**
  Depression preferred in *nondominant* resections

- ***Naylor et al. 1994: Postoperative* depression was more frequent in *right temporal* resections (4 of 5 pts).**

- ***Kohler et al. 1999*:**
  P*resurgical* affective disorders: more common in the *right temporal* epilepsy group.

- ***Glosser et al. 2000*:**
  At *any time* pre- and postop.: *Right temporal* lobe patients were more symptomatic psychiatrically

- ***Own results, Bethel, 100 pts. (2001):***
  ***Preop* mood disorders: 15 of 21 right temporal (71%)**
  ***Postop* new MDDs: 7 of 9 right temporal (78%)**

- ***Quigg et al. 2003*:**
  Postop depression preferred in *right* resections

Predictors:
Psychiatric Precondition

- Improvements of ***aggressive behaviours***
- Aggressive behaviour may ***change into depression*** (in some patients)

Hill 1957 and Taylor 1987

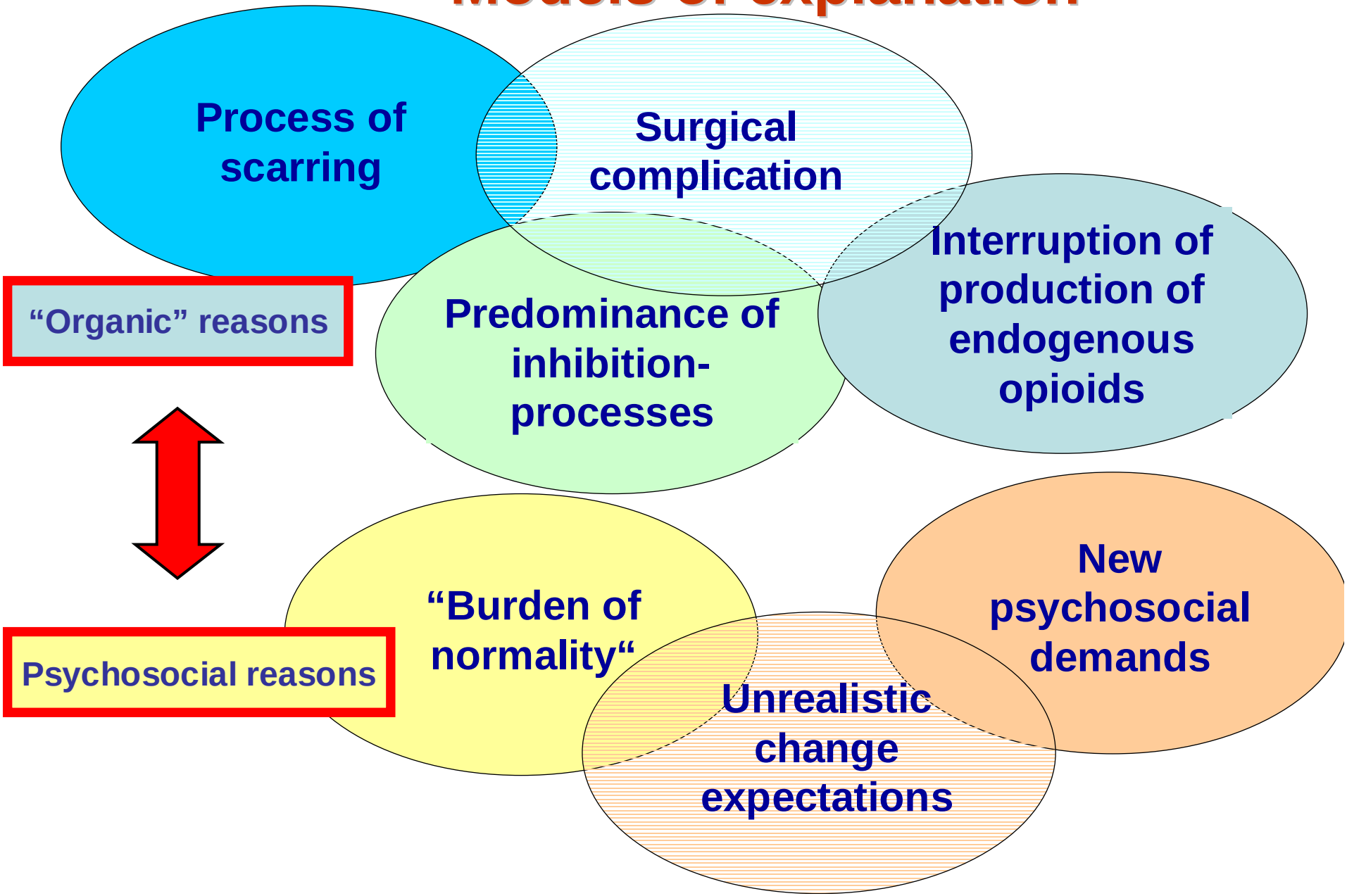
Correlation between preoperative ***postictal psychosis*** and postoperative depression.

Kanemoto et al. 1998, own experience in Bethel

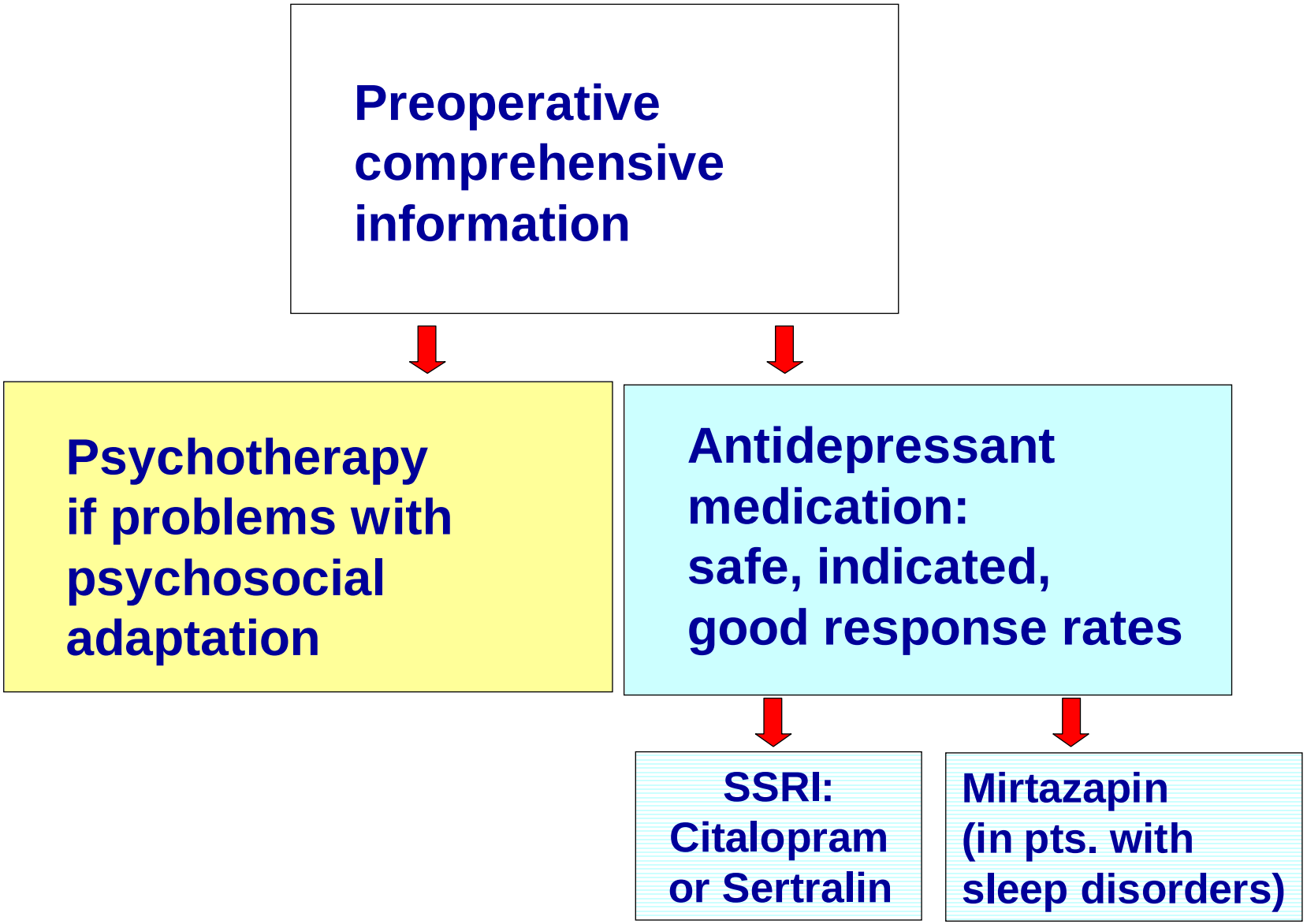
High presurgical depression-related morbidity (affective instability) leads to a high probability of depression within the first year after surgery.

Quigg et al. 2003

Postoperative depression:
Models of explanation



Postoperative Depression:
Treatment



Psychoses

in the perioperative context

Meta-analysis on frequencies: 0 – 35%

Higher rates in early studies (1959-1975)

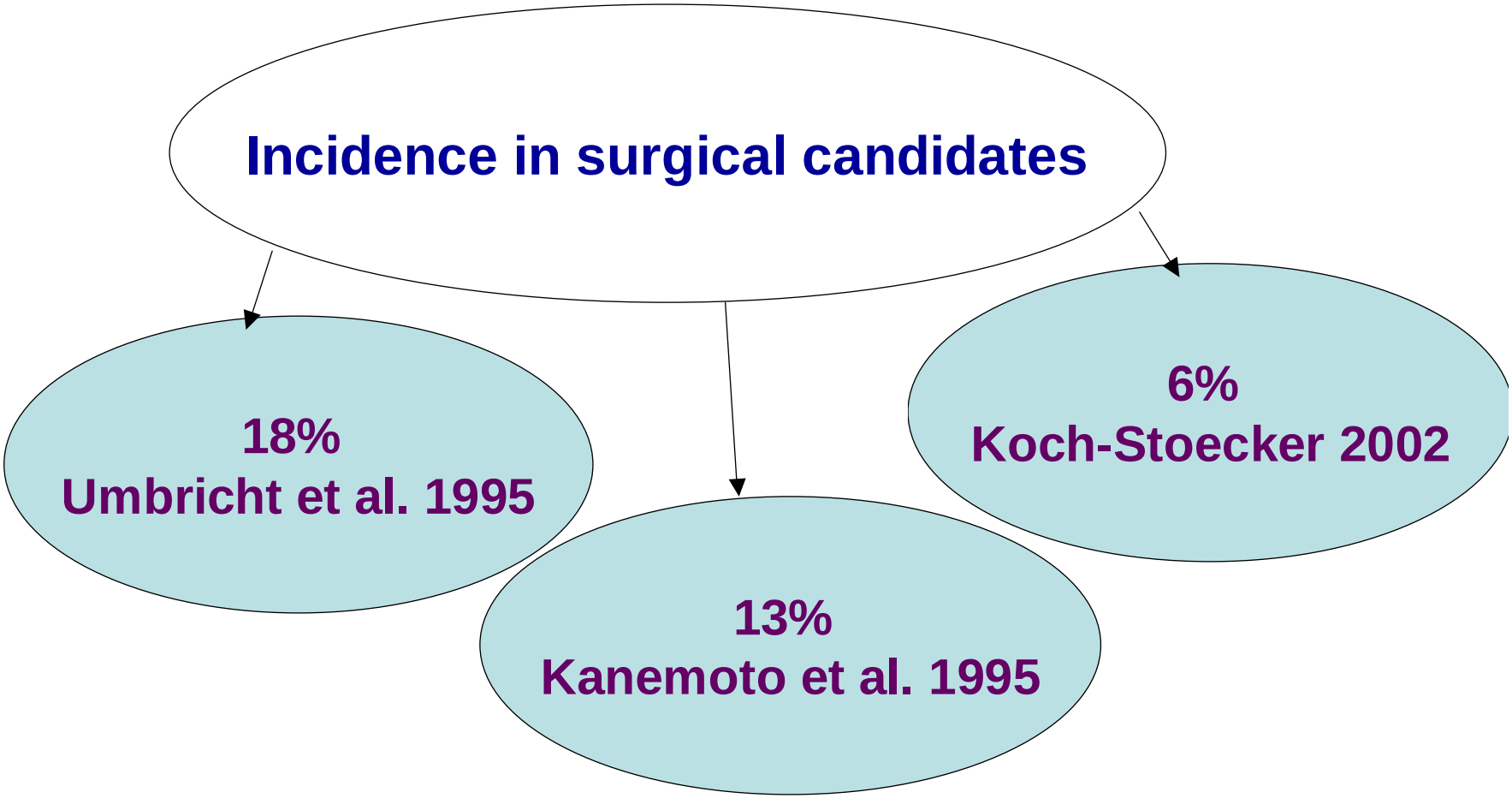
Variability due to methodological issues

Last years: more sophisticated studies

Differentiation between preoperative and de novo psychoses

But still: no controlled studies

Postictal Psychosis



Postictal Psychosis

Postoperative Development

Persistence of psychosis: ⇨ **No patient**

Postoperative depression: ⇨ **60% (Kanemoto et al. 1995)**
⇨ **50% (Koch-Stoecker 2002)**

Postictal psychosis can be called an *indication* for epilepsy surgery!

But: Patients have to be informed about their increased depression risk

Chronic Interictal Psychosis

CIIPs (psychosis not correlated to seizure activity) were seen as contraindications for epilepsy surgery during the first 30 years of ES

Reason for contraindication:
Fear of worsening of psychosis due to surgery

Chronic Interictal Psychosis

No persistent worsening of psychoses after surgery has been observed (Taylor, 1972)

Some cases of amelioration of psychosis observed (Jensen& Larsen 1979, Taylor 1987)

Psychotic patients are “better off” without seizures (Fenwick 1988)

Directly after surgery an exacerbation of psychosis may happen (own centre, Bethel)

No absolute contraindication!

But: good information before and solid rehabilitation after surgery are essential (Krahn et al.1996)

De novo psychosis after epilepsy surgery

Author	Total n		New-onset psychosis	
Simmel 1958	44		4 (9.0%)	
Taylor 1972	100		7 (7.0%)	
Jensen 1979	74		9 (12.1%)	
Polkey 1983	40		2 (5.0%)	
Walker 1984	50		6 (12.0%)	
Bruton 1988	248		9 (3.6%)	
Bladin 1992	107		2 (1.9%)	
Leinonen 1994	57		3 (5.2%)	
Naylor 1994	37		0 (0.0%)	
Koch-Stoecker 1997	100		5 (5.0%)	
Anhoury 2000	109	**253 pts.**	0 (0.0%)	**5 psy-choses**
Kanemoto 2001	52		2 (3.8%)	
Mayanagi 2001	70		2 (2.9%)	
Cankurtaran 2005	22		1 (4.5%)	
Σ	**1010**		**47 (4.8%)**	**2%**

De novo Psychoses after Surgery: Aetiological models

Psychosis after surgery in patients with ongoing seizures: *new "postictal psychosis"*
(Savard et al. 1998, Christodoulou et al. 2002)

Psychosis with postoperative freedom of seizures: *alternative psychosis* under conditions of *forced normalization*
(Mace & Trimble 1991)

Surgery as a *trigger* of a latent readiness of psychosis in highly vulnerable patients
(Ferguson et al. 1993, Koch-Stoecker 1997)

De novo Psychoses after Surgery: Morphology

A correlation between new-onset-psychoses and tumor resection, especially ***gangliogliomas*** oder DNET has been described (Bruton 1988, Andermann et al. 1998)

Andermann et al. reported **6 cases** of psychoses
from 4 different centres,
all had gangliogliomas,
no other lesion-type led to psychosis.

…but this finding is equivocal…
(maybe the psychoses in pts. with gangliogliomas are more odd, intense, visible, and thus easier to be diagnosed)

Because of the small number of patients with those aetiologies multicenter-studies should be performed.

De novo Psychoses after Surgery: Laterality

Predominant occurrence in pts. with ***non-dominant*** resections.
(Mace & Trimble 1991; own results: Bethel)

… in contrast to ***interictal epilepsy psychoses*** which occur preferably with focus in the ***dominant*** hemisphere. (Flor-Henry 1969)

De novo Psychoses after Surgery: Psychiatric Predictors

All de novo psychoses in patients with **personality disorders**. (Bethel)

- Predominantly paranoid personality features (reproaches, devaluation and mistrust in social relationships)
- But also avoidant persons with low IQ and little competence to cope with stress

De novo Psychoses after Surgery: Symptomatology

- Often starting with sleep disorders, and depressed mood, followed by a successive development of
- delusions and paranoid phantasies, which deal with one‘s own social role (being stigmatized, being haunted…)
- normally starting within the first two postoperative years (but often *later* than postop. depression)

- Or: After a seizure-relapse (as an acute psychotic event) with hallucinatory symptoms (delusion of influece by laser, idea of microchips implanted during surgery…)

Chronicity of new psychosis is rare, but it happens!

De novo Psychoses after Surgery :
Treatment

Risk minimisation:

- Identify persons at risk before surgery,
- Elaborate appropriate rehabilitation plans
- Get the families of pts. involved

Optimize seizure situation:

- Antiepileptic drugs,
- Second resection

Early application of antipsychotic medication:

- e.g. risperidone (or olanzapine)
- If necessary in combination with antidepressants

Non-epileptic Attacks after Surgery

If psychogenic nonepileptic seizures co-exist with epileptic seizures before surgery…

… surgery should only be performed when an effective psychotherapeutic process is running.

… better wait for some months under treatment, when in doubt!

Non-epileptic Attacks after Surgery

Frequency

10%	Glosser et al. 1999
5%	Ney et al. 1998
4%	own results: Bethel

Suspicious symptoms

New seizure type after surgery, derealisations, depersonalisations, other dissociative symptoms

Non-epileptic Attacks after Surgery Predictors

☆ *Gender:*	female	(Glosser et al. 1999, own results: Bethel)
☆ *Seizure onset*:	adulthood	(Glosser et al. 1999)
☆ *IQ:*	low	(Ney et al. 1998)
☆ *Laterality*:	right	(Glosser et al. 1999, own results: Bethel)
	left	(Ney et al. 1998)
☆ *Preop. psycho-pathology:*	high	(Ney et al. 1998)
	Borderline	(own results: Bethel)

Conclusions

Preoperative psychiatric disorders may have a strong influence on the course and outcome of epilepsy surgery, concerning quality of life and even seizure outcome.

For mentally stable persons epilepsy surgery is an optimal condition for better health and better quality of life.

For mentally vulnerable persons (especially those with personality disorders) epilepsy surgery may be a strong stressor and may additionally evoke new psychiatric disorders after surgery.

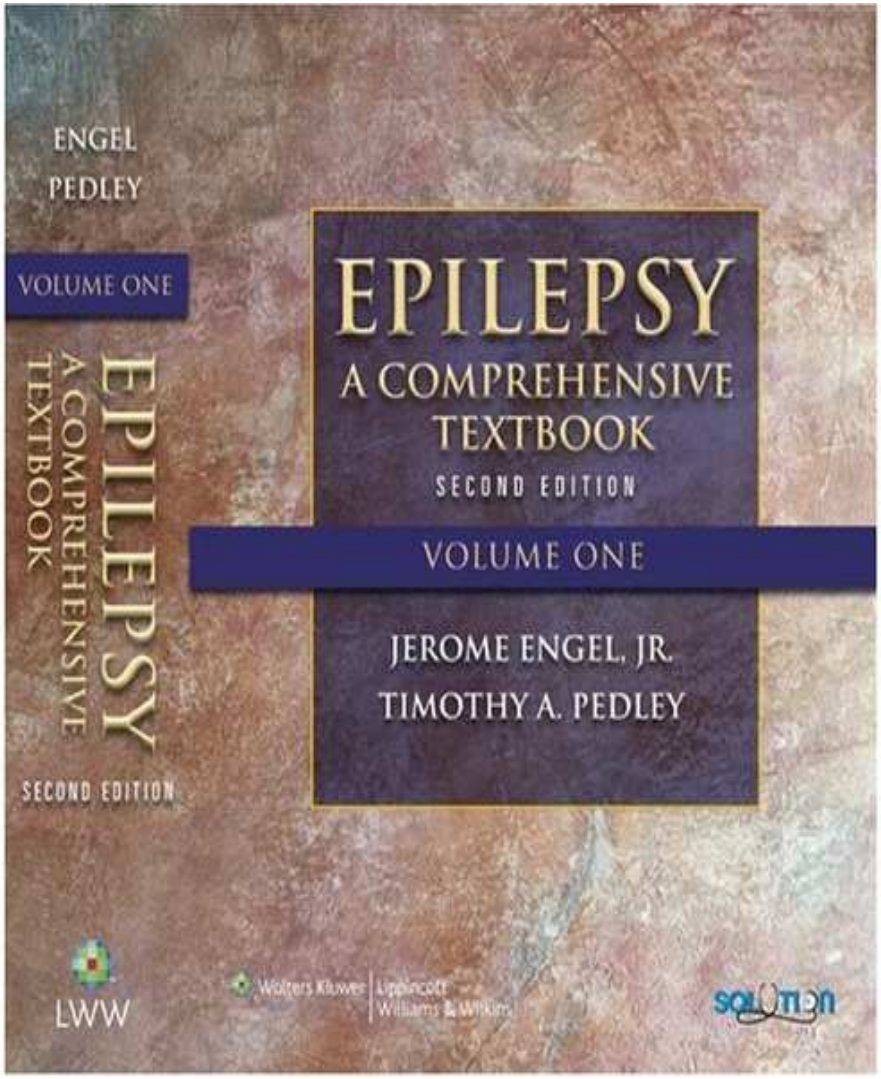
Conclusions

This does not mean to exclude psychiatric patients from ES,…

… but to assess all patients and start treating their disorders already during the preop. period.

Do not start an epilepsy surgery program without access to solid psychiatric counselling …

Reference:



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Thank you for your attention!