The relevance of ADHD in substance use disorders (SUD)

Pieter-Jan Carpentier, psychiatrist

Reinier van Arkel Groep, ‘s-Hertogenbosch

Novadic-Kentron, Netwerk voor Verslavingszorg

THE NETHERLANDS

God

invented

alcohol

to prevent

the Irish

from ruling

the world

"I resent being called 'lazy.' The politically correct term is 'motivationally impaired.' "

adult ADHD

NL: 1.0 - 2.5 % (N= 1800)

USA: 4.4 % (N= 3200)
(Nat. Comorbidity Survey Replication)

worldwide: 3.4 % (N =11422)
(1.2 - 7.3%)

Kooij e.a. *Psychol Med.* 2005; 35: 817-27.
Kessler e.a. *Am J Psychiatry*. 2006 Apr;163(4):716-23
Fayyad e.a. *Br J Psychiatry*. 2007; 190: 402-9

Comorbidity in adults with ADHD

± 80 % of patients at least 1

± 50 % at least 2

comorbid psychiatric disorder(s):

- mood disorders: mood swings
  depression
  bipolar disorder
- anxiety disorders
- personality disorders
- ***Substance Use Disorders***

McGough *Am J Psychiatry* 2005; 162: 1621-7

substance use disorders (SUD)

main characteristic: ***loss of control***

DSM-IV-TR : diagnostic and statistical manual of mental disorders

abuse: persistent use in spite of serious negative consequences

dependence: even more serious abuse, complicated by

- tolerance
- withdrawal symptomatology

craving

Prevalence of Adult ADHD in Substance Abusers Seeking Treatment *

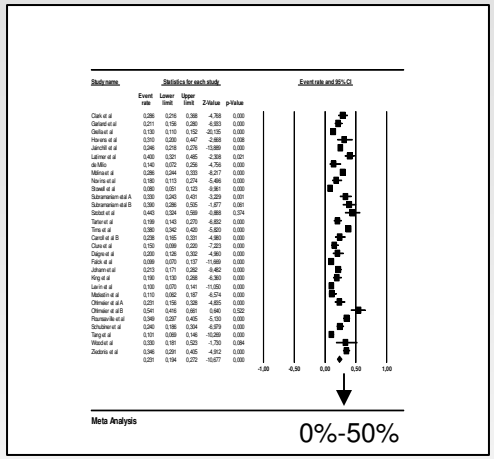
Author, Year	Population	ADHD
Levin, 1998	281 Cocaine Abusers	10-15%
Clure, 1999	136 Cocaine and/or Alcohol Abusers	15%
King, 1999	125 Methadone Patients	17%
Schubiner, 2000	201 Substance Abusers	24%

* Based on DSM-IV Criteria

Prevalence
ADHD in SUD

Prevalence of ADHD in substance-abusing patients: A meta-analysis and meta-regression analysis.

Katelijne van Emmerik - van Oortmerssen
Geurt van de Glind
Wim van den Brink
Filip Smit
Cleo L. Crunelle
Robert A. Schoevers



29 studies, including 6689 subjects (4054 adolescents and 2635 adults)

Overall prevalence ADHD in SUD = 23.1% (95% C.I: 19.4% – 27.2%)

Meta-regression analysis:
- lower prevalence of ADHD in primary cocaine dependent subjects
- higher prevalence of ADHD in studies with DICA or SADS-L
- no effect of age, gender, setting, time-frame, abstinence duration

ADHD & SUD : prevalence

bidirectional overrepresentation of ADHD and SUD
among subjects with these disorders

ADHD prevalence clearly *increased* among SUD patients

clinical impression: ADHD prevalence even more increased
among SUD populations with
more severe / more chronic disorders (e.g. inpatient populations)

adults with ADHD + SUD are at risk for
other psychiatric comorbidities and
a longer course of SUD

ADHD & SUD : selection of substances

substances used: EVERYTHING !

NO CLEAR SELECTION

not only psycho-stimulant drugs:

amfetamines / cocaine

paradoxical effect of stimulant drugs **:**

(some, not all) users become relaxed and more focused

also sedating substances:

alcohol / heroine / soft drugs

Clure e.a. *Am J Drug Alcohol Abuse*. 1999; 25: 441-8
Biederman e.a. *Am J Psychiatry* 1995; 152: 1652-8

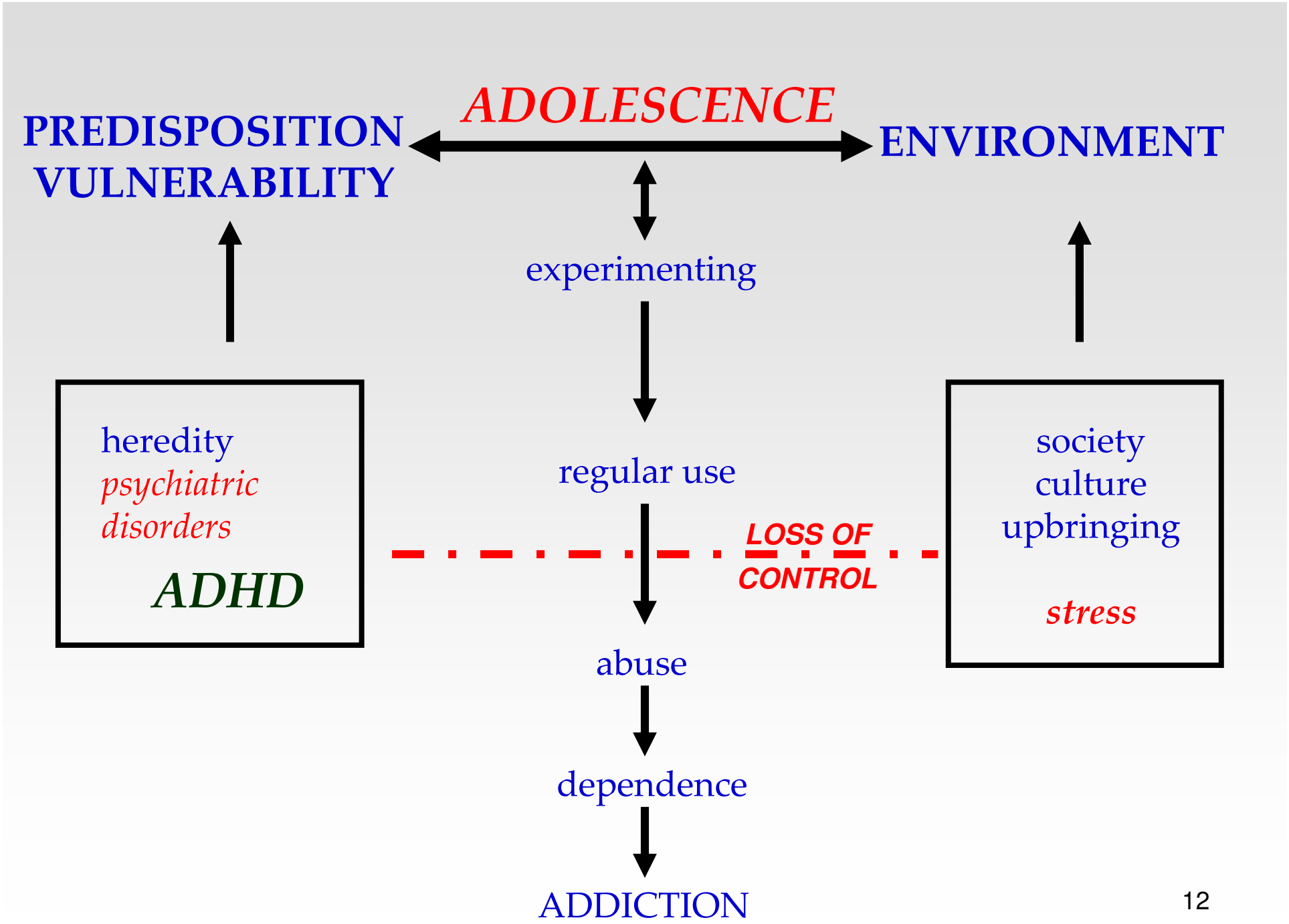
ADHD & SUD : case histories

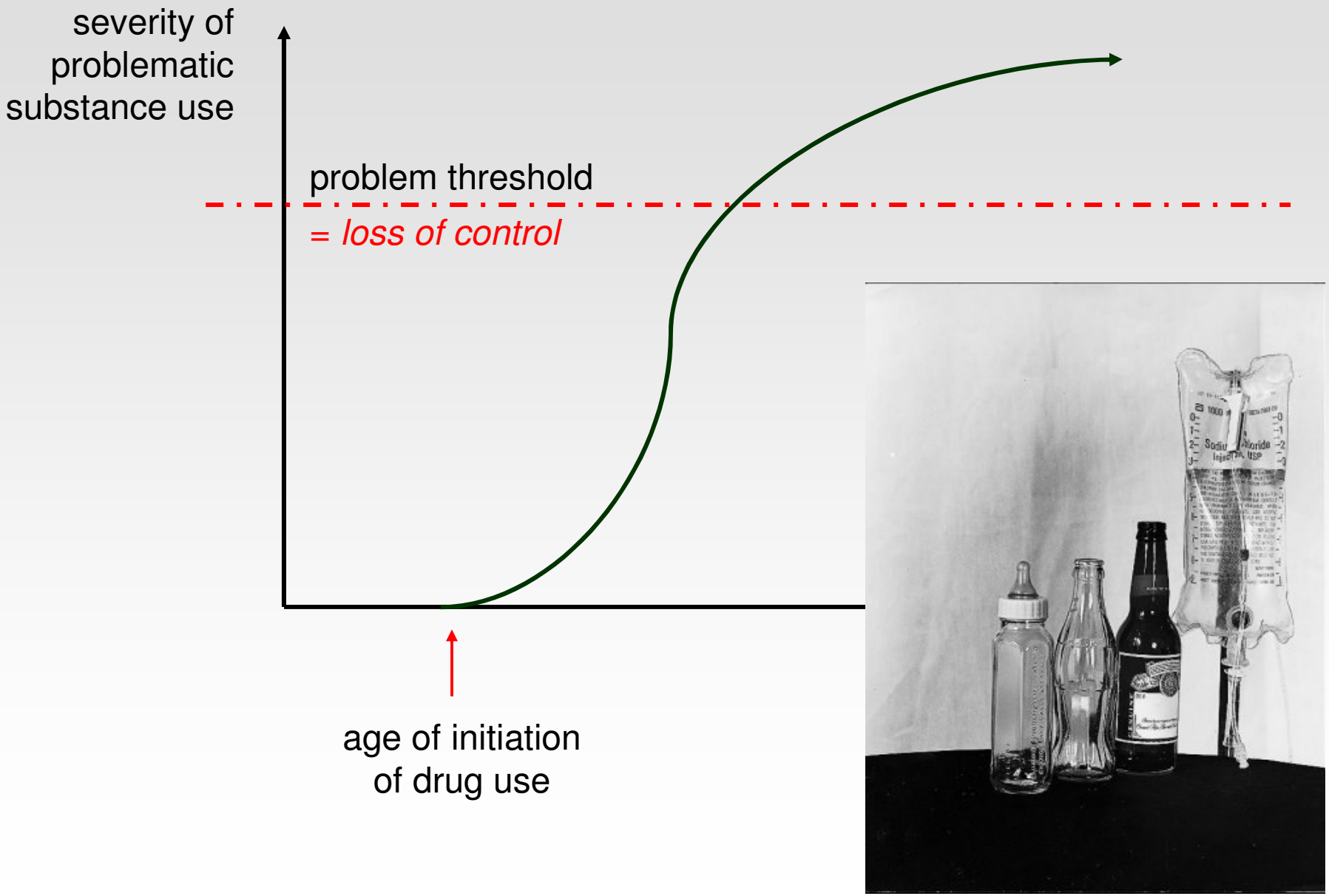
patients with SUD and ADHD:

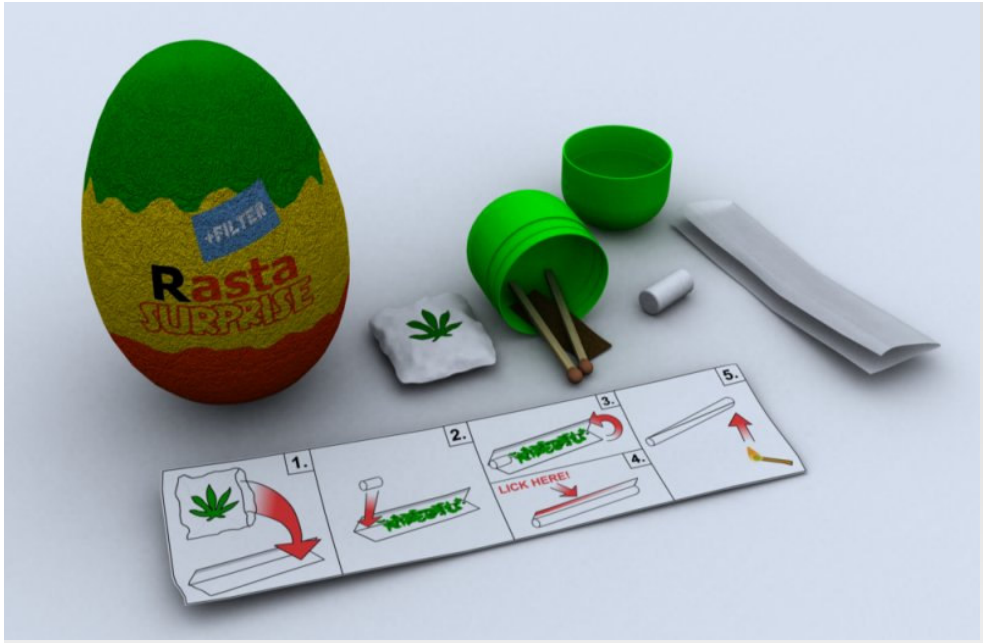
- more often a history of conduct disturbance in childhood
    - Oppositional Defiant Disorder (ODD)
    - Conduct Disorder (CD)
- more often an Antisocial Personality Disorder (*ASP*):

  up to 50 % of patients

- earlier start of drug use/abuse
- *more severe course of substance use disorder?*
- ADHD not diagnosed or treated previously


ADOLESCENCE
PREDISPOSITION
VULNERABILITY
ENVIRONMENT
experimenting
heredity
psychiatric
disorders
ADHD
regular use
LOSS OF
CONTROL
society
culture
upbringing
stress
abuse
dependence
ADDICTION


severity of problematic substance use
problem threshold
= loss of control
age of initiation of drug use



the earlier the age of initiation:

1. the more likely there is something fundamentally wrong:
- with the individual:
psychiatric disorders
- and/or with the environment:
abuse, neglect

2. greater risk of

problematic substance use

Addictive drugs, primarily by virtue of neuroplastic changes associated with dopamine activity most highly concentrated in primary motivation circuitry, produce long-term motivational effects

Earlier age of initiation

is a strong predictor

of substance use disorders in adulthood

Chambers RA *Am J Psychiatry* 2003: 160: 1041-1052
McGue M *Alcohol Clin Exp Res* 2001; 25(8): 1156-1165

Influence of ADHD
on initiation into, transition to and recovery from SUD

ADHD accelerates transitions:

- earlier start of substance use
- more rapid transitions

  use → abuse → dependance

  nicotine → alcohol & softdrugs → harddrugs
- remission more difficult

Wilens e.a. *J Nerv Ment Dis* 1997; 185: 475-82
Wilens e.a. *Am J Addiction* 1998 7: 156-163

ADHD & SUD :

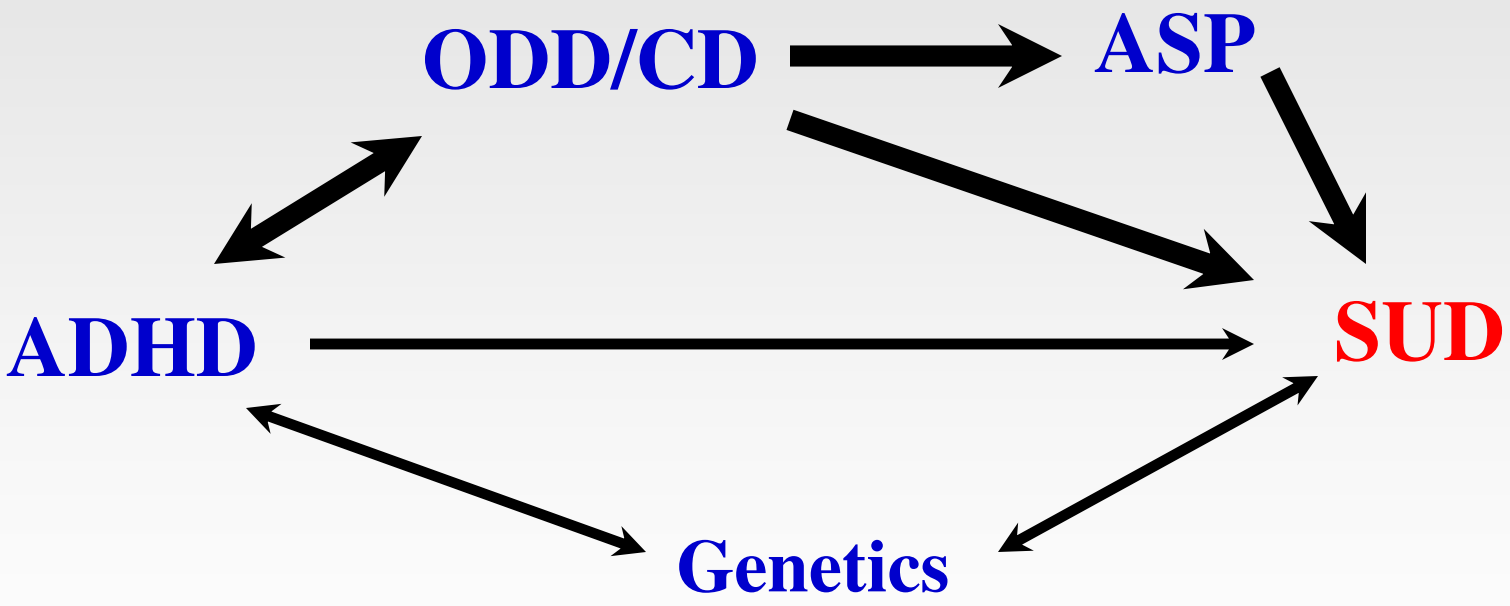
"... the increased association of ADHD and SUD is the product of a developmental interaction with ADHD symptoms (eg, impulsivity or behavior dysregulation) and the consequences of ADHD (eg, poor academic performance), creating an increased opportunity for the development of a SUD."

JJ Mariani & FR Levin, 2007

ADHD influences
the development of problematic substance use
at several levels

Mariani JJ, Levin FR. *American Journal on Addictions* 2007; 16: 45-56

ADHD & SUD : pathways of influence



ODD / CD / ASP and ADHD

severe conduct disorders in youth:

- *Oppositional Defiant Disorder (**ODD**)*
- *Conduct Disorder (**CD**)*

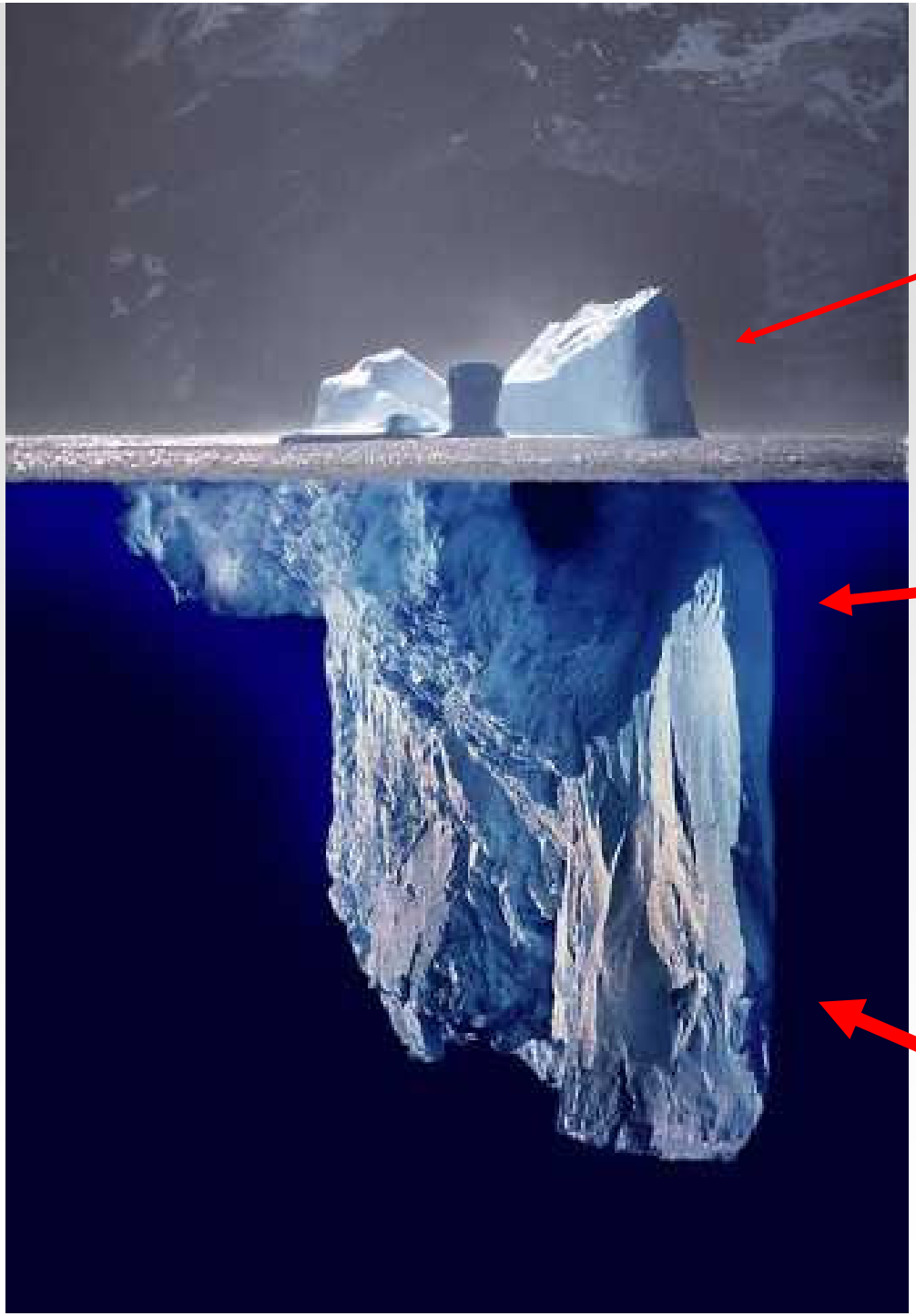
Frequent + ADHD (up to 50 %)

well known risk factors for

- *AntiSocial Personality Disorder (**ASP**)*
- *SUD*

→ ***for some experts** MAJOR/ONLY **explanation of ADHD-SUD-association***

Lynskey & Hall *Addiction* 2001; 96: 815-22.



ADHD

Conduct Disorder

AntiSocial Personality Disorder

ODD / CD / ASP and ADHD & SUD

when controlling for the influence of these disorders
in prevalence and longitudinal studies:

- SUD can be attributed to presence of ODD/CD/ASP
- influence of ADHD limited or absent

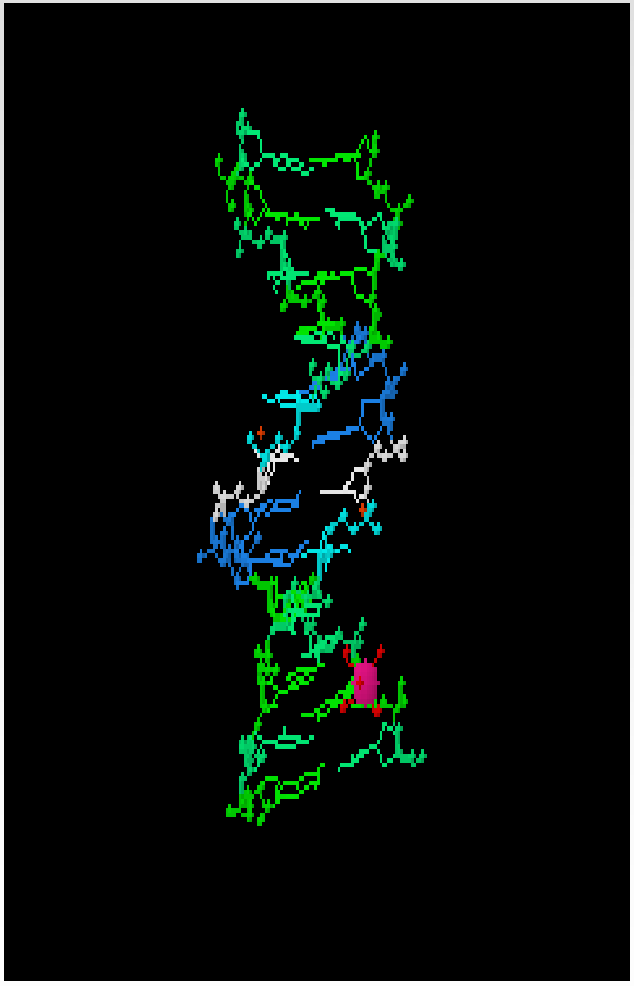
this combination of psychopathology (ADHD + CD/ASP +SUD)
is mostly found in patients
with severe/chronic substance use disorders

other studies have shown:

1. ADHD is independant risk factor for SUD
2. combination of ADHD + CD highest risk for SUD
   (synergistic instead of additive effect)

Faraone *Biol Psychiatry* 2000; 48: 9-20.
Flory & Lynam *Clin Child Fam Psychol Rev* 2003; 6: 1-16.

Heredity



higher prevalence of SUD in ADHD families

ADHD symptoms more frequent
in families of SUD patients

is there an overlap in the genetic base
of ADHD and SUD ?

Dopamine receptor

Wilens *Am J Addict* 2005; 14: 179-87

ADHD risk factors

- type of symptomatology
  - risk ↑ with hyperactivity/impulsivity
- severity of symptoms
  - risk ↑ with persistence of symptoms
  - risk ↑ more severe symptoms
- ADHD-related dysfunctions
  - impulsivity / inability to delay gratification
  - risky behaviour / no consideration of long-term consequences
- need for strong stimulation (*boredom)*
- psychological factors: *self-medication hypothesis*
- secundary problems: underachievement
  demoralisation
  low self-esteem

self-medication hypothesis (Khantzian)

use of drugs in an attempt to influence / lessen / regulate psychiatric symptoms

The notion of "self-medication" is one of the most intuitively appealing theories about drug abuse. Drug abuse begins as a partially succesful attempt to assuage painful feelings. Individuals, predisposed by biological or psychological vulnerabilities find that drug effects corresponding to their particular problems are powerfully reinforcing. (R. M. Glass)

Problems are soluble in alcohol ...

Problems are not dissolvable in alcohol, they can swim.

(Heinz Ruhmann)

Khantzian *Harv Rev Psychiatry* 1997; 4: 231-44

self-medication and ADHD

<u>Drugs are used</u> by ADHD patients:

- to calm down
- to be able to think more clearly and to concentrate
- to lessen anxiety
- to feel less depressed
- to relieve boredom
- …

Paradoxical *calming* effect of psychostimulant drugs in ADHD

paradoxical effect of amphetamine – *speed* :

is to be considered as:

- important clinical clue for ADHD diagnosis
- predictor of positive response to stimulant medication

paradoxical effect of cocaine : *less clear*

- not easy to diffentiate any calming effect from strong euphoric effect of cocaine
- (probably) less predictive value

Why treat ADHD in Substance Use Disorders (SUD)?

- ADHD is a risk factor for the development of substance use disorders, especially in combination with severe conduct disturbances in childhood (Conduct Disorder)
- ADHD is highly prevalent in patients with substance use disorders (prevalence 10 to 30%)

- ADHD has a negative influence on the prognosis of the substance use disorder
  - earlier start drug use
  - higher therapy drop-out rate
  - higher relapse rate
- troublesome ADHD symptoms prevent an effective participation in treatment

Wilens, *Psych Clinics of N America* 2004; 27: 283-302

Why treat ADHD in Substance Use Disorders ?

to reverse the negative influence on SUD prognosis

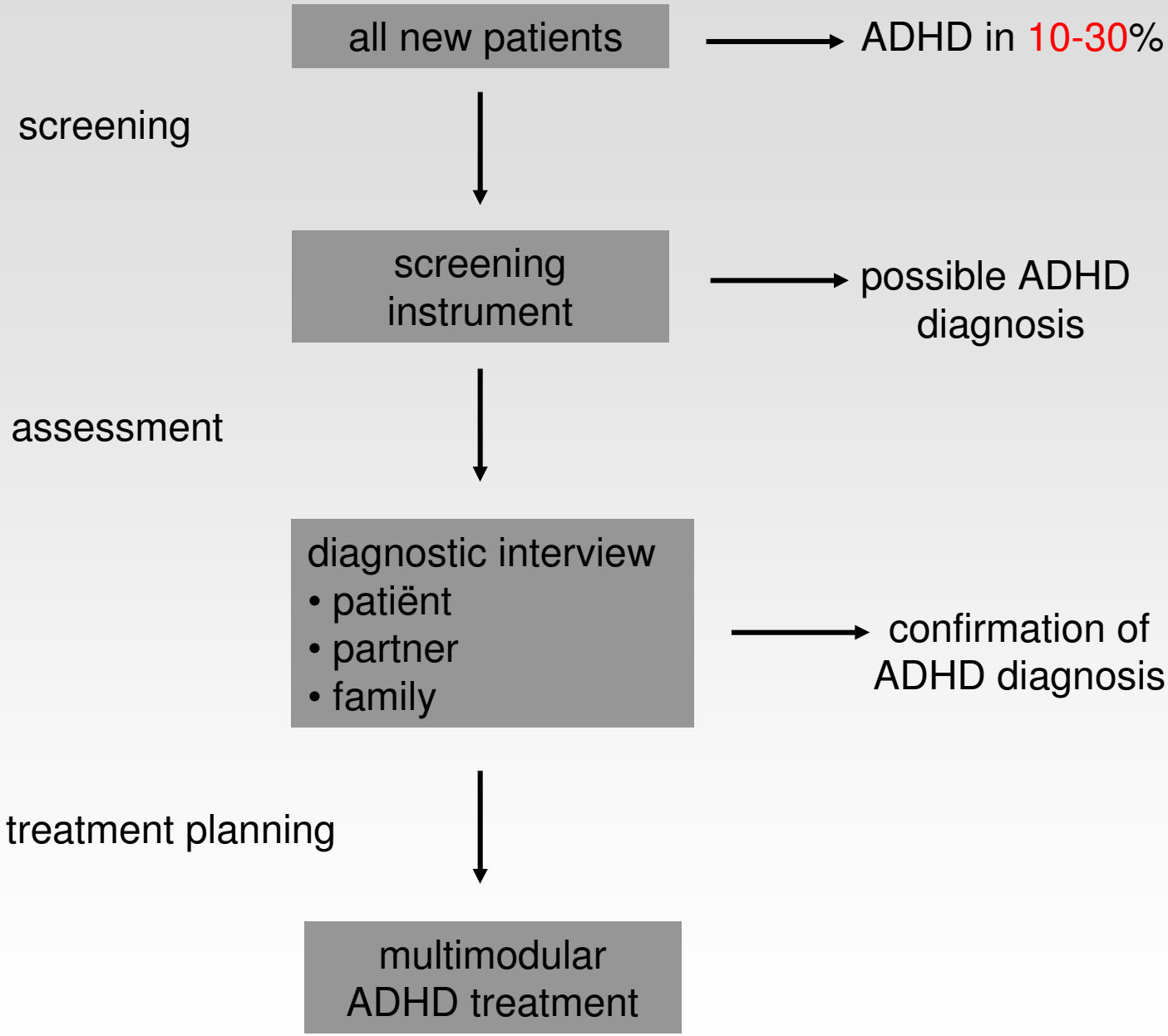
ADHD treatment offers clear benefits to SUD patients

- stabilisation of psychiatric symptomatology
- self-medication hypothesis →
  stabilisation of ADHD decreases the tendency to use drugs
- adequate executive functions are essential to a fruitful participation in treatment

sufficient reasons to recommend

active screening for

and treatment of ADHD !


all new patients
ADHD in 10-30%
screening
screening instrument
possible ADHD diagnosis
assessment
diagnostic interview
• patiënt
• partner
• family
confirmation of ADHD diagnosis
treatment planning
multimodular ADHD treatment

Adult Self-Report Scale-V1.1 (ASRS-V1.1) Screener

from WHO Composite International Diagnostic Interview

Date

Check the box that best describes how you have felt and conducted yourself over the past 6 months. Please give the completed questionnaire to your healthcare professional during your next appointment to discuss the results.

	Never	Rarely	Sometimes	Often	Very Often
1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?					
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?					
3. How often do you have problems remembering appointments or obligations?					
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?					
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?					
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?					

Add the number of checkmarks that appear in the darkly shaded area. Four (4) or more checkmarks indicate that your symptoms may be consistent with Adult ADHD. It may be beneficial for you to talk with your healthcare provider about an evaluation.

"You tested positive for being negative."

for a reliable ADHD diagnosis

a standard procedure is recommended

- interview patient
- evaluate current and childhood symptomatology according to DSM-IV criteria
  DIVA: Diagnostic Interview for ADHD in adults: www.divacenter.eu
- seek corroborative information by partner/parents/siblings
- ask for school reports, earlier assessments and reports
- check family history

Part 1: Symptoms of attention-deficit (DSM-IV criterion A1)

Instructions: the symptoms in adulthood have to have been present for at least 6 months. The symptoms in childhood relate to the age of 5-12 years. For a symptom to be ascribed to ADHD it should have a chronic trait-like course and should not be episodic.

A1

Do you often fail to give close attention to detail, or do you make careless mistakes in your work or during other activities? *And how was that during childhood?*

Examples during adulthood:

- ❑ Makes careless mistakes
- ❑ Works slowly to avoid mistakes
- ❑ Does not read instructions carefully
- ❑ Difficulty working in a detailed way
- ❑ Too much time needed to complete detailed tasks
- ❑ Gets easily bogged down by details
- ❑ Works too quickly and therefore makes mistakes
- ❑ Other:

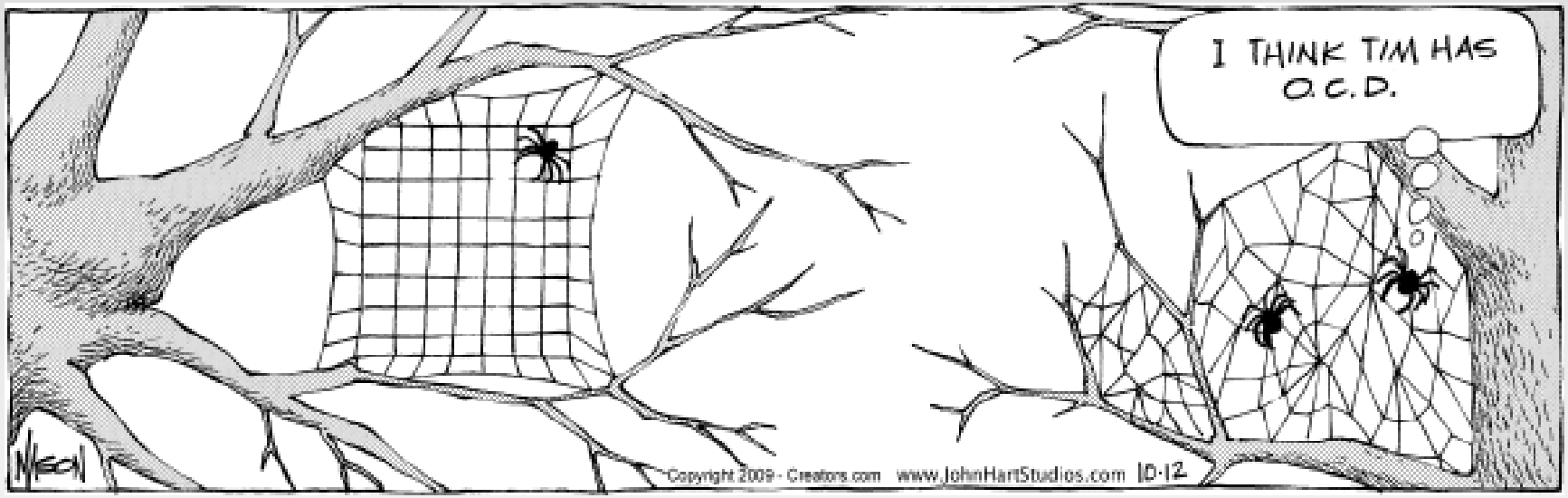
Symptom present: ❑ Yes / ❑ No

Examples during childhood:

- ❑ Careless mistakes in schoolwork
- ❑ Mistakes made by not reading questions properly
- ❑ Leaves questions unanswered by not reading them properly
- ❑ Leaves the reverse side of a test unanswered
- ❑ Others comment about careless work
- ❑ Not checking the answers in homework
- ❑ Too much time needed to complete detailed tasks
- ❑ Other:

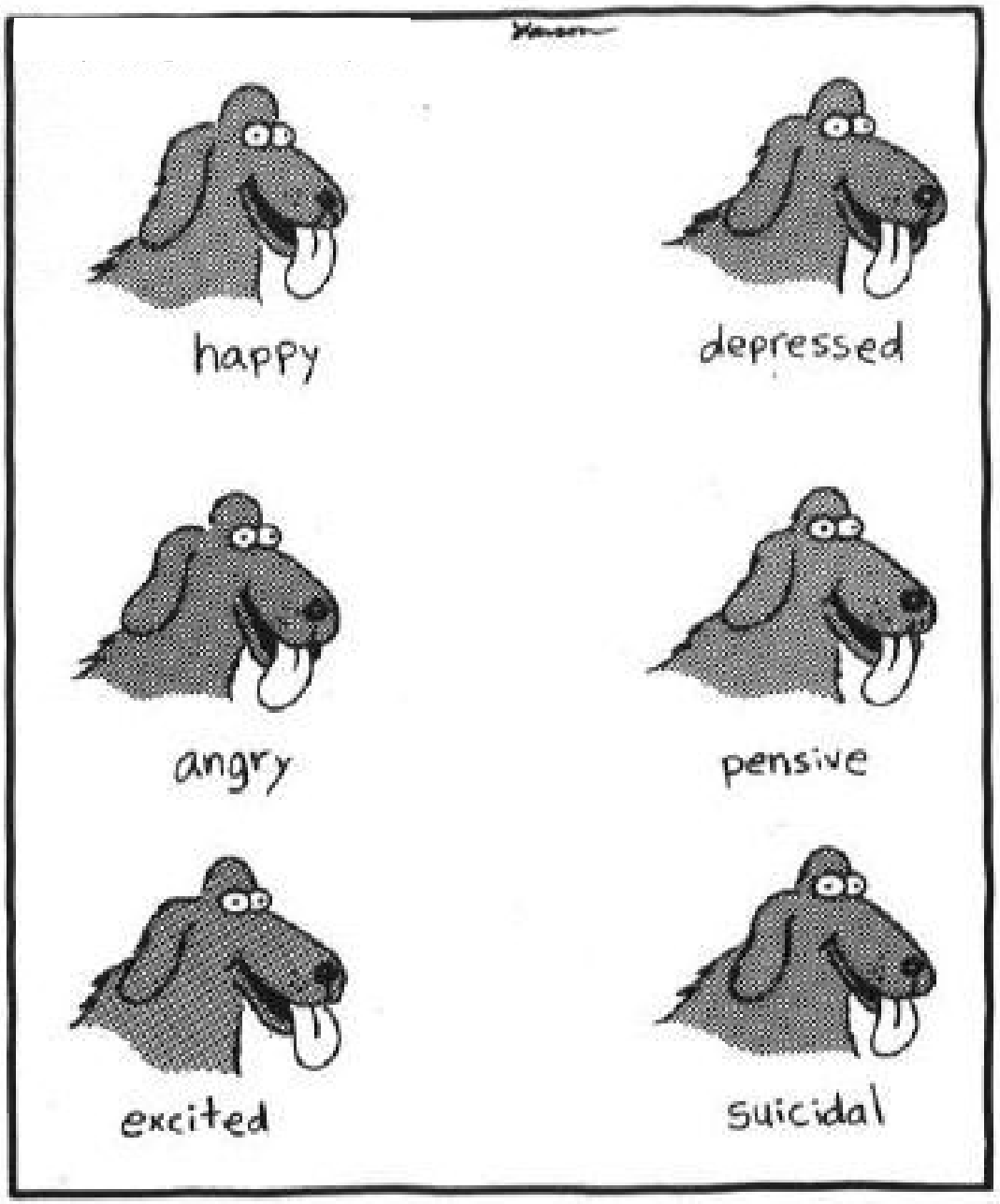
Symptom present: ❑ Yes / ❑ No

the clinical picture



the clinical presentation of adults with ADHD is mostly inconspicuous but can offer clues for a positive diagnosis:

- physical restlessness is absent in most patients
- troublous and accelerated speech, loud voice
- unstructured and lengthy narrative



How to recognize the moods of an Irish setter

ADHD diagnosis

is based ***primarily***

on information regarding lifetime and current symptom presence and functioning,

preferably from multiple sources (patient, partner, parents, family),

illustrating a chronic persistent course,

and **not** on

clinical symptom presentation

and **not** on

neuropsychological testing

"Yes, everything—I need a list of all the medications you're on."

Reliable diagnosis of ADHD in SUD patients

ADHD symptoms can be masked by effects drug use

drug use can produce ADHD symptoms

clinical assessment of ADHD in drug patients is difficult but not impossible:

ADHD = chronic disorder

evaluation of life-time symptomatology is needed

- Symptoms before start substance use
- symptoms during periods of abstinence
- symptoms during periods of stable drug use

Mariani JJ, Levin FR. *Am J Addict*. 2007;16 Suppl 1:45-54

trial treatment of possible ADHD

In principle patients with ADHD have a specific response to psychostimulant medication, different from people without ADHD

→ trial treatment with MPH as a diagnostic procedure

TO BE AVOIDED

1. inaccurate diagnostic procedure

   what looks like ADHD is only ADHD after a proper assessment

2. both false-positive and false-negative reactions to MPH are possible

Diagnostic assessment

1. confirmation of ADHD diagnosis:
using information from all available sources:

- patient
- partner → ***severity*** *of ADHD symptoms & dysfunction*
- family → *symptomatology in* ***childhood***

2. assessment of substance use disorder (SUD)

3. psychiatric comorbidity: other psychiatric problems ?

4. somatic problems ?

5. psychosocial problems ?

Psychiatric Comorbidity

especially in patients with chronic and more severe addiction:

ADHD will be accompanied by:

- history of Conduct Disorder in youth
- other DSM-IV-TR Axis I comorbidity (mood and anxiety disorders)
- (antisocial) personality disorder

ADHD is ***certainly not*** the ***only*** psychiatric problem

ADHD is ***not even*** the ***most important*** problem

→ Treatment efficacy of ADHD will be diminished due to the comorbid psychiatric disorders

Question:

Why treat ADHD in these chronic and difficult patients?

Why treat a minor disorder in complex patients ?

successful ADHD treatment *can make a difference*

Integrated treatment planning

1. full assessment:
   - psychiatric disorders
   - medical disorders
   - psychosocial problems

2. integrated treatment planning:
   - treatment ***prioritisation:***
     = treating the most important problem first
   - treatment ***integration***:
     ≠ treating every disorder separately
     = combining the different modules for the specific disorders in one coherent treatment

Integrated treatment planning

1. **informed consent**: problem definition / diagnosis / treatment plan and restrictions
2. **detoxification** → abstinence
3. **stabilisation:**
   symptomatic (pharmacologic) treatment of psychiatric disorders
   - DSM-IV-TR Axis I disorders (b.v. depression, anxiety disorder)
   - *treatment ADHD = **medication***
4. **integrated treatment** of substance use disorder / psychiatric comorbidity
   - specific addiction treatment modules (e.g. relapse prevention)
   - treatment personality disorder
   - *treatment ADHD = emphasis on **medication compliance***
5. **rehabilitation - resocialisation**: functioning in society
   - *treatment ADHD = **coaching, cognitive therapy***

Does it work ?

stabilisation / remission of ADHD

↓

stabilisation of mental state

improved ability to participate in treatment

↓

stabilisation / remission of addiction

these suppositions:

- *are **partly** confirmed by clinical experience*
- *are **NOT yet** supported by scientific evidence*

positive results of ADHD treatment in case reports and open trials

OPEN TRIALS	Sample size	Drug	Intervention	Results ADHD/SUD
Levin, 1998	10	cocaine	MPH	+
Upadhyaya, 2001	10	alcohol cocaine	venlafaxine	+
Levin, 2002	10	cocaine	bupropion	+
Solhkah, 2005	14	various	bupropion	+
Levin, 2009	20	cocaine	atomoxetine	+/-

disappointing results of RCTs in medical treatment of ADHD in SUD patients

RCT	Drug (location)	N	Rx Use + max dosage	ADHD	SUD
Schubiner, 2002	cocaine (outpatient)	48	MPH 3 x 30 mg	+	-
Riggs, 2004	*various (adolescents)*	*69*	*pemoline 75 – 112.5 mg*	+	-
Carpentier, 2005	various (inpatient)	25	MPH 3 x 15 mg	-	
Levin, 2006	MMT (outpatient)	98	MPH 2 x 20-40 mg SR	-	-
Levin, 2007	cocaine (outpatient)	106	MPH 1 x 40 mg SR + 1 x 20 mg SR	-	-/+?
Wilens, 2008	alcohol (outpatient)	80	atomoxetine 25 – 100 mg	+	(+)
Konstenius, 2010	amphetamine (outpatient)	24	MPH OROS 72 mg	-	-
Thurstone, 2010	*various (adolescents)*	70	atomoxetine up to 100 mg	-	-

medical treatment of ADHD in SUD patients is compounded by several factors

1. diagnostic inaccuracy: no *clear-cut* ADHD patients
2. psychiatric comorbidity:
   - concurrent chronic psychiatric disorders
   - actual comorbidity
3. neuroplastic changes & adaptations in neurotransmitter systems due to chronic drug use
4. negative influence of persistent drug use
5. inadequate medication: use of immediate-release MPH
   inadequate dosage
   non-compliance
6. ***substantial placebo response***

Predictors of a positive response on ADHD medication in SUD patients

- *clear ADHD*, i.e. mainly genetically based

positive family history

- stable/limited comorbidity

treat comorbid Axis I disorders first

- abstinence or stable/limited drug use

no ADHD medication if patient is unable to control use

- use of modern medication and modern formulations

- good adherence to treatment

good motivation- concrete treatment goals

absent/limited personality dysfunction

experienced staff

ALL THERAPIES WORK BEST WITH THE BETTER PATIENTS

Psychostimulant diversion and abuse

short-acting psychostimulants
(methylphenidate, dextro-amphetamin) ***CAN BE ABUSED***

dilemma: use of medication with clear risk of abuse
in patients who are liable to abuse psychotropic drugs?

euphoric effect only when used:

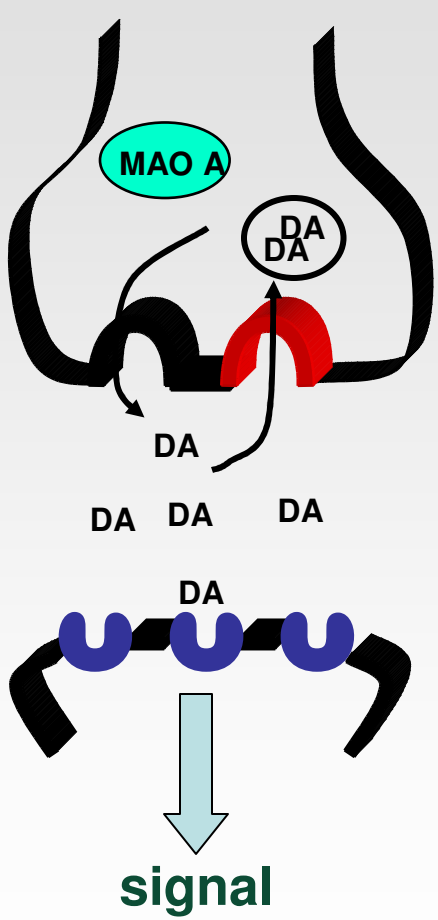
- in higher dosage
- intranasally/intravenously

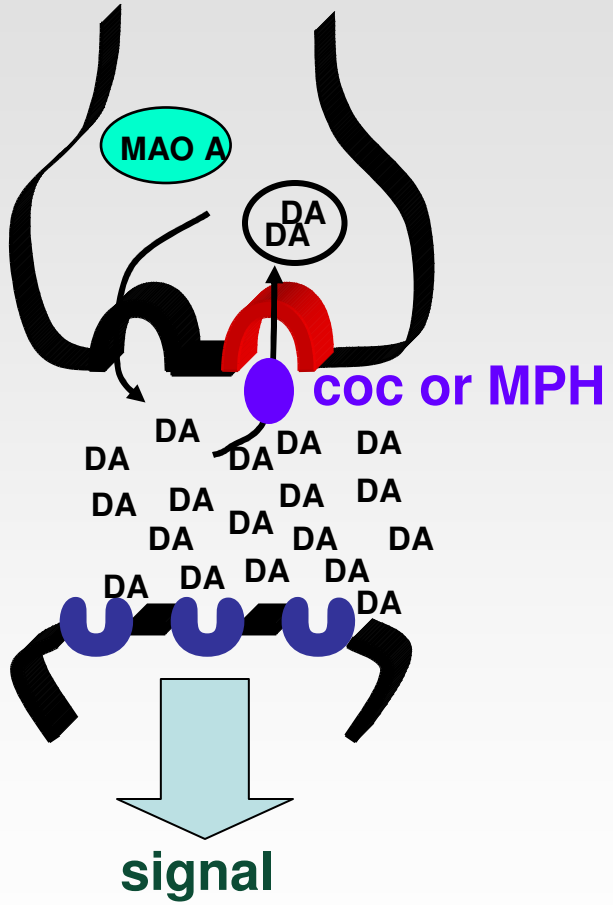
case reports: abuse mainly by others, not by the patients

Kollins SH. *J Clin Psychiatry.* 2003;64 Suppl 11:14-8.

Cocaine and Methylphenidate (COC and MPH)

Block the Dopamine Transporter

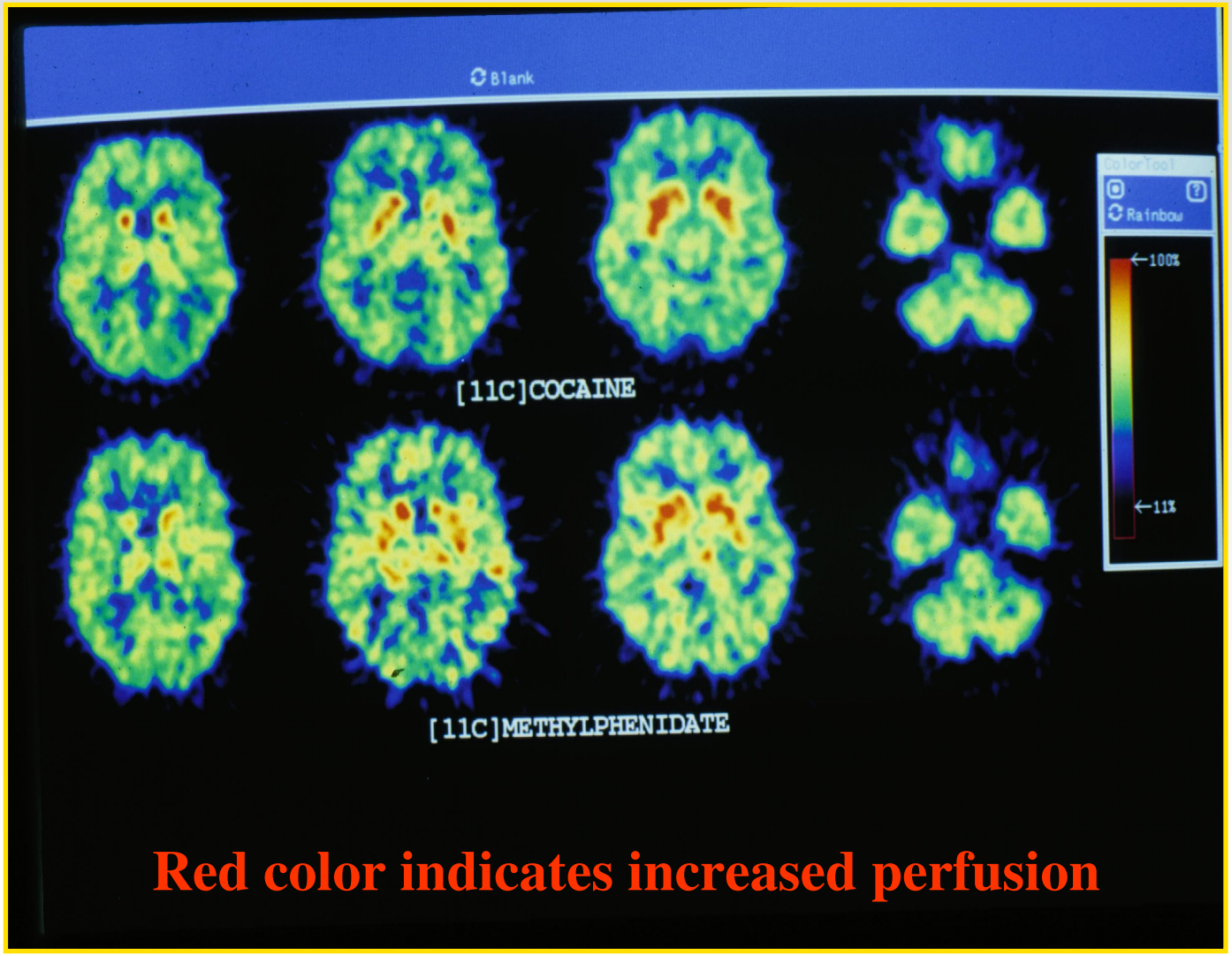




Cocaine 640 nM

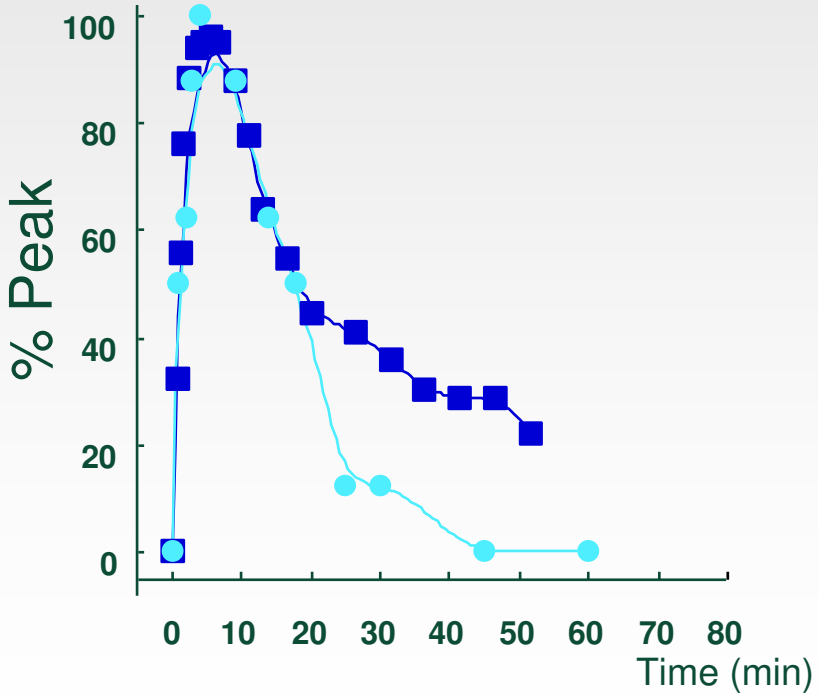
MPH 390 nM

PET Scans Show Cocaine and MPH Both Increase Perfusion in the Same Area of the Brain

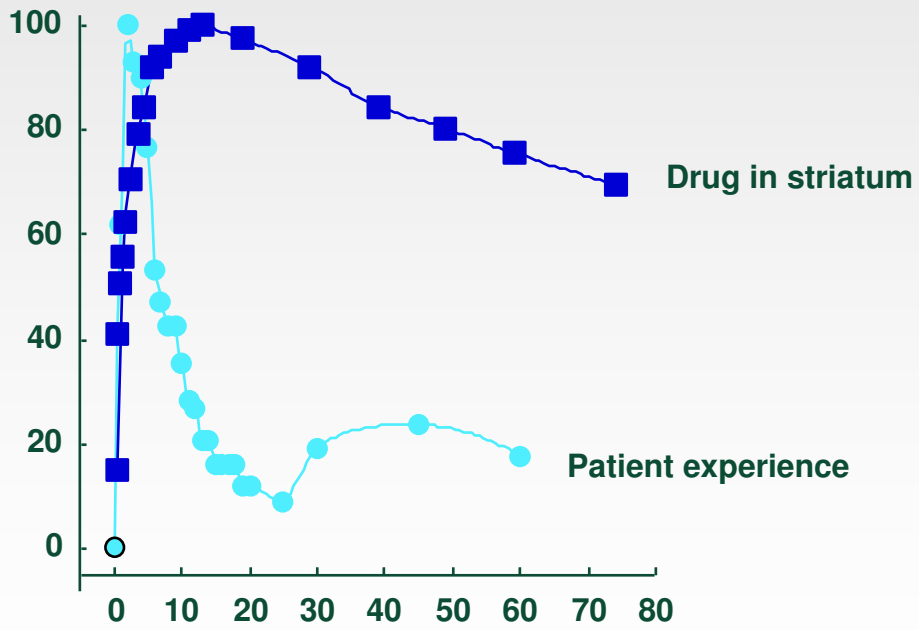


Cocaine Shows More Rapid Pharmacokinetics than Methylphenidate, Explaining the Binge Phenomenon with Cocaine

[^{11}C]Cocaine



[^{11}C]Methylphenidate



Volkow ND. *Arch Gen Psychiatry*. 1995; 52: 456-63

Therapeutic use of methylphenidate does not lead to abuse

Therapeutic use

↑ extracellular dopamine in striatum

→ concentration improvement

- low dosage
- peroral use
- slowly rising serum concentration → slow ↑ dopamine
- aim: symptom reduction
- context: treatment

Abuse

↑ extracellular dopamine in nucleus accumbens

→ reinforcement of abuse

- higher dosage
- intranasally / intravenously
- rapidly rising serum concentration → rapid ↑ dopamine
- aim: kick
- context: abuse

Volkow & Swanson, *Am J Psychiatry 2003; 160; 1909-1918*

Safe use of psychostimulants in ADHD & SUD patients

Prevention of abuse is best !

Use of safe long-acting preparations

Methylphenidate:

long-acting preparations	Concerta	12h duration of action
	Equasym – Medikinet	8h

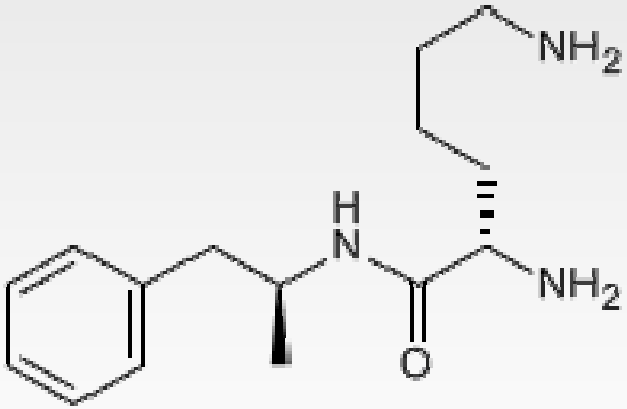
- available in Europe
- not affordable for most patients

Dexamphetamin:

prodrug lysdexamphetamin (Vyvance)

- available in the USA, not in Europe

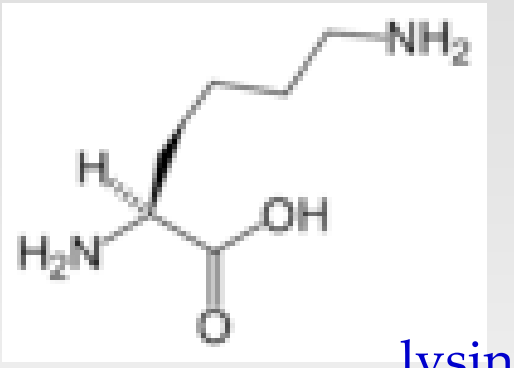
Lisdexamfetamine (Vyvance)



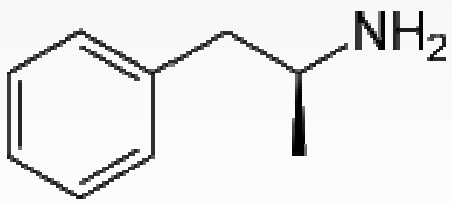
lysdexamfetamine
= prodrug

peroral use

gut



lysine



dexamfetamine

no risk of abuse

Is safe use of short-acting psychostimulants possible in ADHD & SUD patients ?

short-acting psychostimulants should be considered a ***restricted option***

in ADHD patients with substance use disorders,

to be used only under strict conditions: ***risk containment***

- **stick to your agreements**:
  - target symptoms and therapy aims
  - treatment conditions

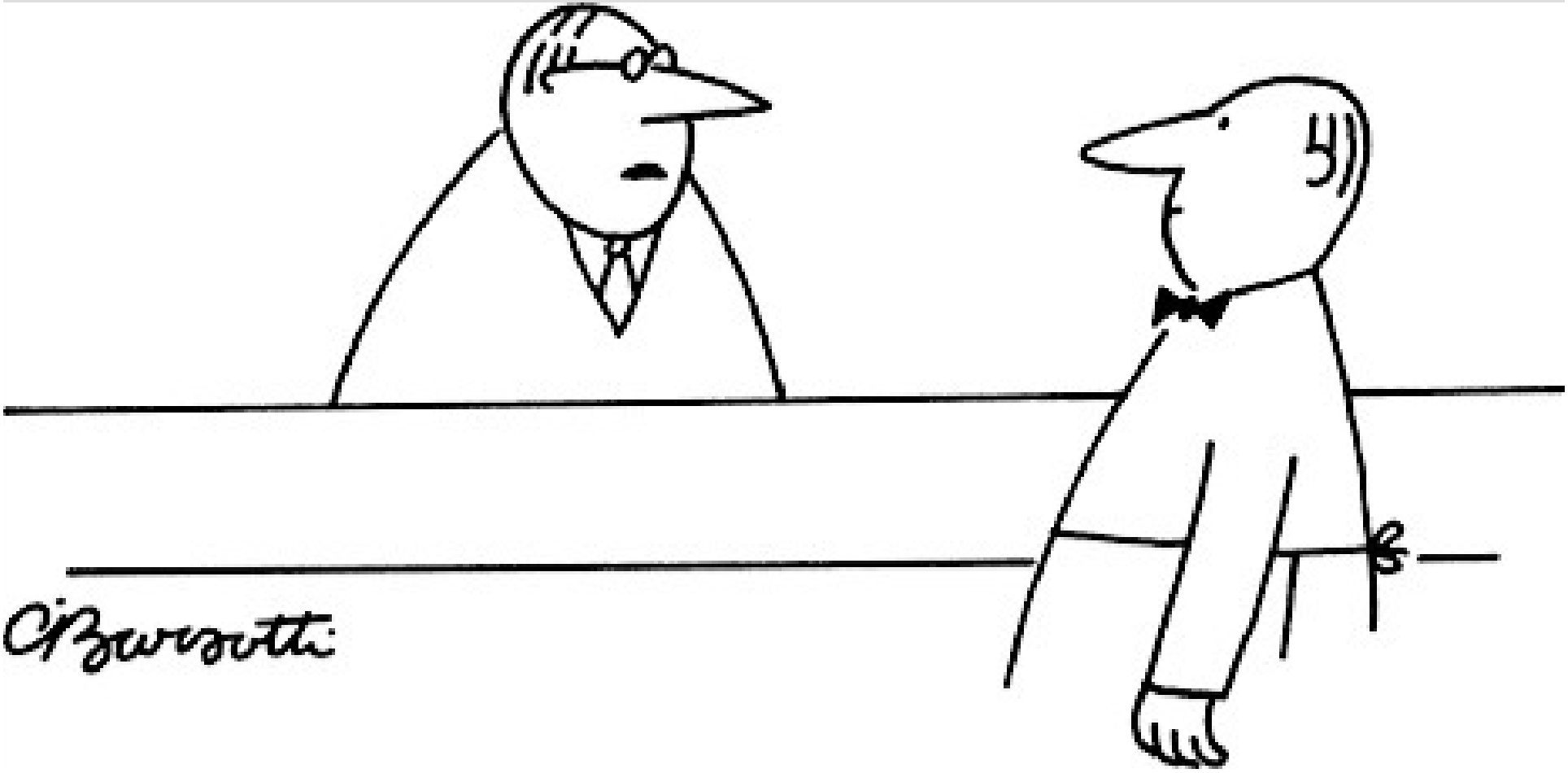
    stop medication when results are insufficient

    or when conditions are not met
- most important condition = **abstinence**
  if necessary control urine samples
- **close monitoring of the patiënt,** especially in the beginning

  supervision of correct use of medication

  (contact pharmacist / family / partner / coach)

  PRESCRIBE LIMITED SUPPLIES
- work actively on therapeutic relationship & therapy compliance



"A dash of hope, a dollop of optimism, a hint of courage, and gin—on the rocks."

Psychosocial treatment of ADHD in SUD

- psycho-education
- coaching
- cognitive therapy

clear benefit for adult ADHD patients

also beneficial for addicted ADHD patients ***in stable conditions*:**

- stable abstinence
- stabilisation/remission of ADHD symptoms
- psychiatric stability

Solanto MV. *Am J Psychiatry*. 2010 Aug;167(8):958-68.
Safren SA. *JAMA*. 2010 Aug 25;304(8):875-80.

Coaching & Cognitive therapy : ingredients

1. psycho-education
2. training of organisational and attentional skills:
   - planning & organisation
   - *time management*
   - structuring daily activities / housekeeping
   - financial management
3. addressing negative/dysfunctional cognitions and beliefs:
   - negative self-image
   - avoidance of frustrating activities
4. re-orientation: learning to live with a chronic handicap
   - work: retraining - occupational resettlement
5. emotional issues
   - lost chances / failures / disappointments
   - paying attention to family and relatives
6. group offers possibility of exchanging knowledge/experiences/emotions

Will it work ?

Major challenge:

how to prove the benefit

of multimodal treatment of ADHD in SUD patients

realistic expectations:

(compare with experience

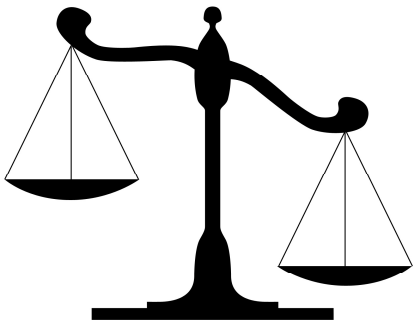
with other dual diagnosis patients)

ADHD treatment:

- can lead to leads to

stabilisation/remission of ADHD symptoms

- cannot and does not cure the addiction



Greatest challenge: building the expertise

Adequate treatment of ADHD in addicted patients

demands a **multimodular approach**

executed by **different team members**: psychiatrist

psychologist

psychiatric nurse

ergotherapist

- high level of psychiatric expertise
- high level of therapeutic expertise

not always available in addiction treatment facilities

Treating ADHD in SUD patients

is a mark of quality psychiatric care !

early diagnosis and treatment of ADHD prevents SUD

(*sensitisation*: putative addiction threshold-lowering effect of psychostimulant medication in developing brain)

Biederman, 1999: 56 children > 15 j, follow-up 4 j:

- *medication treatment (mostly psychostimulant drugs) leads to decrease of SUD risk* (85%)

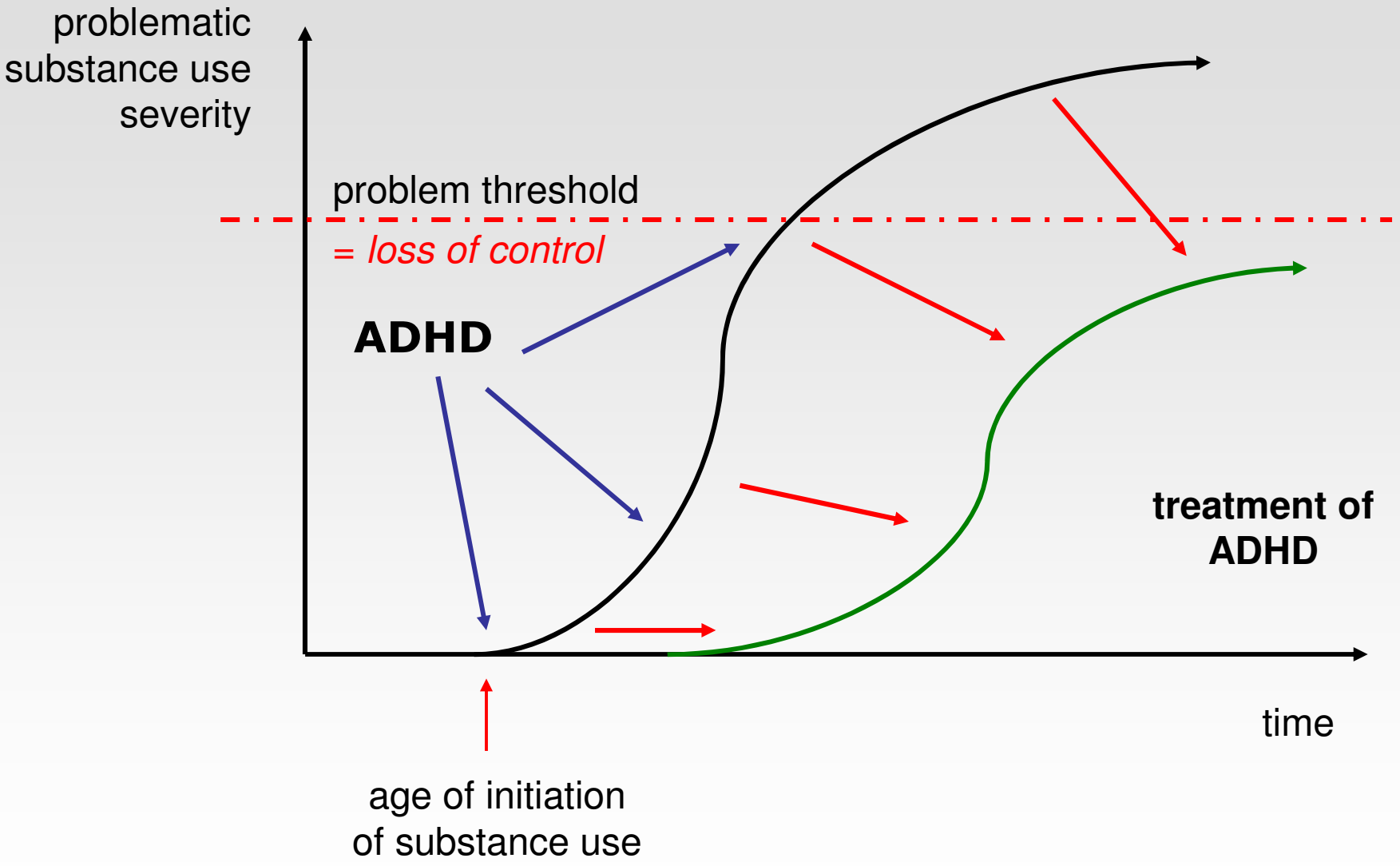
Barkley, 2003: 147 children, follow-up 13 j into young adulthood (19-25 j):

- *no indication for increase SUD with psychostimulant treatment*

Wilens, 2003: meta-analysis: 6 studies, 674 patients:

- *psychostimulant treatment of ADHD in youth leads to decrease in risk for SUD in adulthood*

Biederman *Pediatrics* 1999; 104: e20
Barkley *Pediatrics* 2003; 111: 97-109
Wilens *Pediatrics*. 2003; 111: 179-85


problematic
substance use
severity
problem threshold
= loss of control
ADHD
treatment of
ADHD
time
age of initiation
of substance use

Does Stimulant Therapy of Attention-Deficit/Hyperactivity Disorder Beget Later Substance Abuse? A Meta-analytic Review of the Literature

Timothy E. Wilens, Stephen V. Faraone, Joseph Biederman and Samantha Gunawardene

Pediatrics 2003;111;179-185

TABLE 2. Studies That Examined the Impact of ADHD Pharmacotherapy on Later Substance Use Disorders

Study	Protective Effect (OR)	
	OR	95% CI
Meta-analysis of drug studies		
Lambert[15]	0.47	0.22–1.0
Biederman[14]	3.9	1.8–8.1
Huss[26]	2.2	0.99–5.1
Loney[25]	1.1	0.46–2.8
Molina[21]	4.6	1.5–14.5
Barkley	0.83	0.29–2.3
Meta-analysis of alcohol studies		
Lambert[15]	0.6	0.32–1.1
Biederman[14]	8.1	3.9–17.2
Loney[25]	3.6	1.7–7.4
Molina[21]	6.6	1.4–30.2
Barkley	0.98	0.36–2.7

The OR measures the increase in the odds of not having an SUD outcome between medicated and unmedicated youths with ADHD. ORs >1 indicate a protective effect of pharmacotherapy on SUD outcome. The larger the OR, the greater the protective effect of pharmacotherapy on SUD outcome.

Stimulant Therapy and Risk for Subsequent Substance Use Disorders in Male Adults With ADHD: A Naturalistic Controlled 10-Year Follow-Up Study

Joseph Biederman, M.D.

Michael C. Monuteaux, Sc.D.

Thomas Spencer, M.D.

Timothy E. Wilens, M.D.

Heather A. MacPherson, B.A.

Stephen V. Faraone, Ph.D.

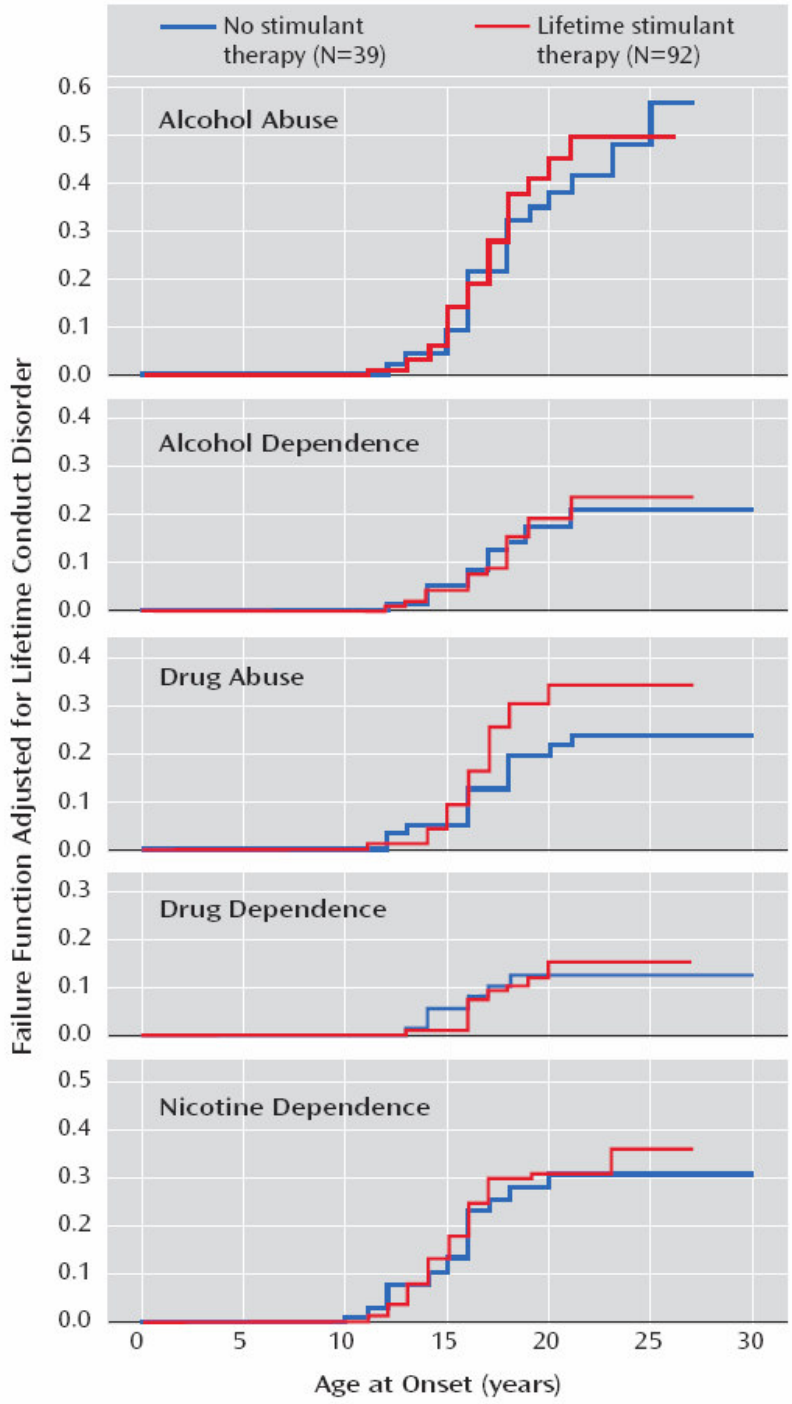
Objective: The extant literature does not provide definite answers pertaining to whether stimulant treatment increases, decreases, or does not affect the risk for subsequent substance use disorders in youths with attention deficit hyperactivity disorder (ADHD). The authors examined the association between stimulant treatment in childhood and adolescence and subsequent substance use disorders (alcohol, drug, and nicotine) into the young adult years.

Method: The authors conducted a 10-year prospective follow-up study. One hundred forty male Caucasian children with ADHD, ages 6 to 17, were examined at baseline. Of these, 112 (80%) were reassessed at the 10-year follow-up (mean age at follow-up=22 years). Assessments were made using Cox proportional hazards survival models. All models were adjusted for conduct disorder, since conduct disorder is a potent predictor of subsequent substance use disorders.

Results: Of the 112 ADHD subjects who were reassessed at the 10-year follow-up, 82 (73%) had been treated previously with stimulants and 25 (22%) were undergoing stimulant treatment at the time of the follow-up assessment. There were no statistically significant associations between stimulant treatment and alcohol, drug, or nicotine use disorders.

Conclusions: The findings revealed no evidence that stimulant treatment increases or decreases the risk for subsequent substance use disorders in children and adolescents with ADHD when they reach young adulthood.

(Am J Psychiatry Biederman et al.; AiA:1–7)



Protective effect of ADHD treatment not confirmed in longer follow-up

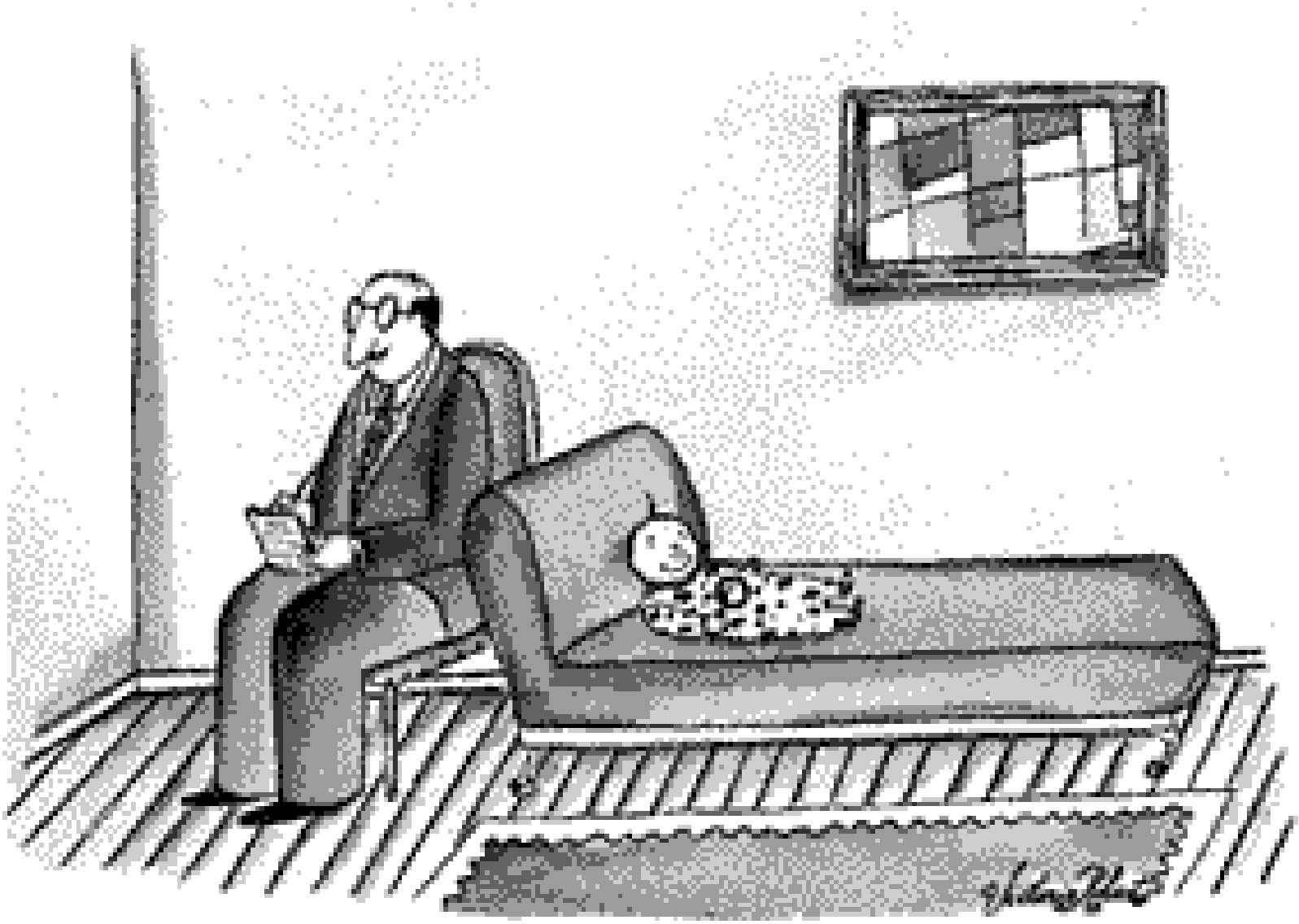
explanation still lacking

inconsistent treatment: not all participants remained in active treatment

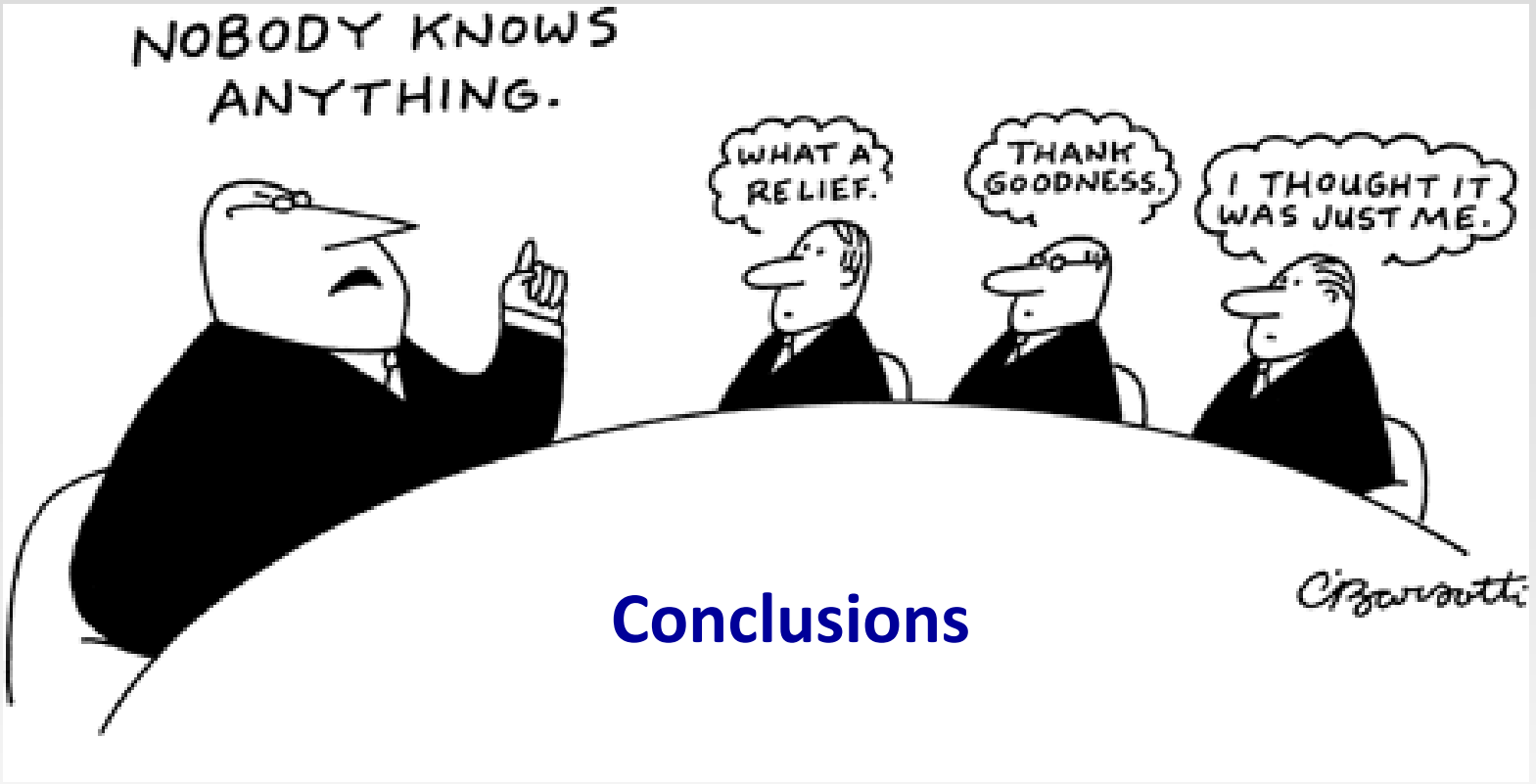
no evidence of increased risk of addiction following psychostimulant treatment in childhood

early identification and treatment of ADHD

is still recommended



"I wish I'd started therapy at your age."

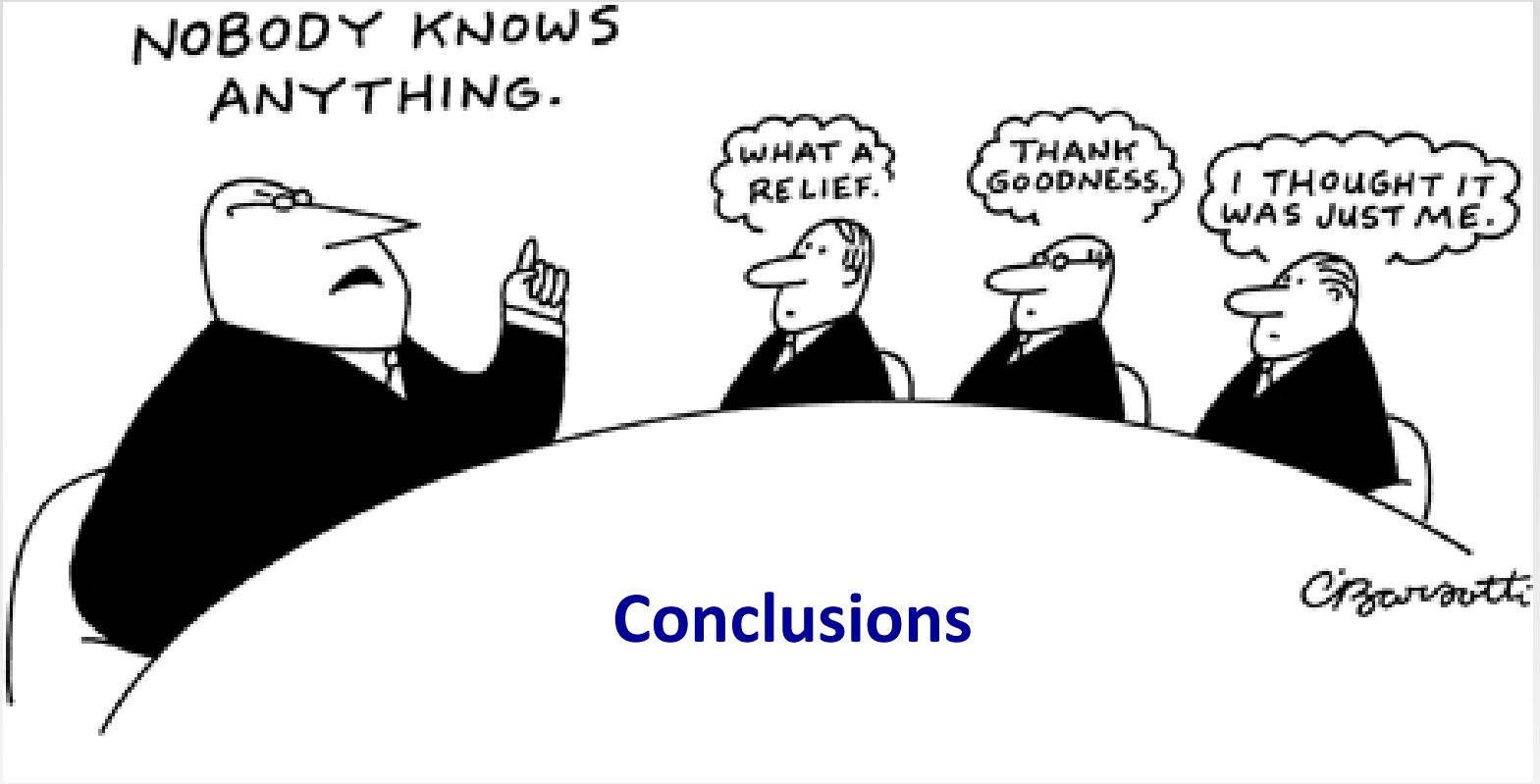


Conclusions

ADHD is a frequently occuring and ***treatable (?)*** disorder in SUD patients

Treatment of ADHD in adults should always include screening for and treatment of SUD

Early detection and treatment of ADHD offers the best hope of preventing substance use disorders in adolescence and adulthood

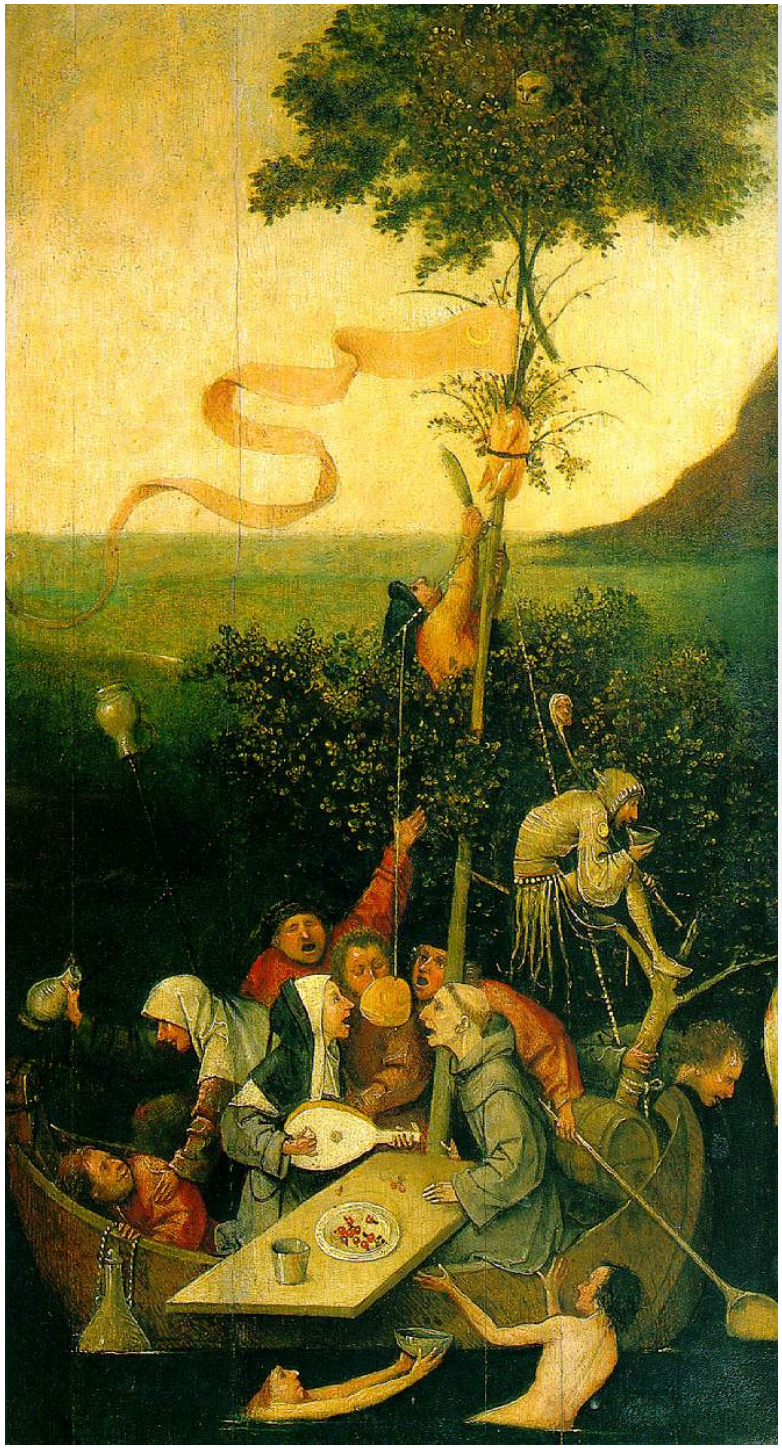


Conclusions

ADHD is a frequently occuring and ***treatable (?)*** disorder in SUD patients

The main challenge is to offer adequate and multimodal ADHD treatment in an ***integrated*** approach of these complex patients

ADHD treatment is a stimulus for ***improving*** the level of psychiatric care of SUD patients



Conclusions

1. ADHD is an independant, treatable risk factor for SUD (of moderate influence).
2. Treatment of ADHD in adults should always include screening for and treatment of SUD.
3. Screening for and treatment of ADHD deserves a prominent place in the integrated treatment of complex and severe substance use disorders.