what is the permanent impact of loss of the vestibular sense ?

for balance, vision and spatial orientation)

loss of **speed**

- poor dynamic vision (daily life)
- fear to fall and falls

loss of **automatisation**

- severe cognitive load:
  - anticipation constantly required to prevent falls
  - impaired double tasking
  - fatigue
- visual dependence: intolerance to optokinetic stimuli
  - no more shopping or parties

how do we assess

complaints, syndromes in the history ?

new insight in history taking of dizziness

vestibular disorders

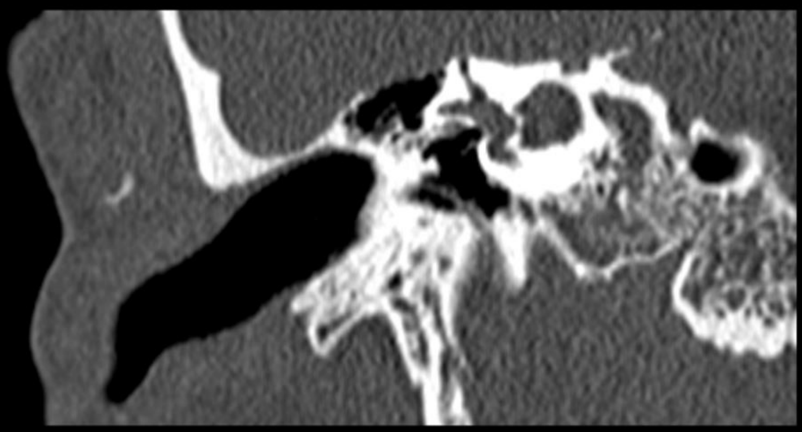
“history taking: hints and pitfalls”

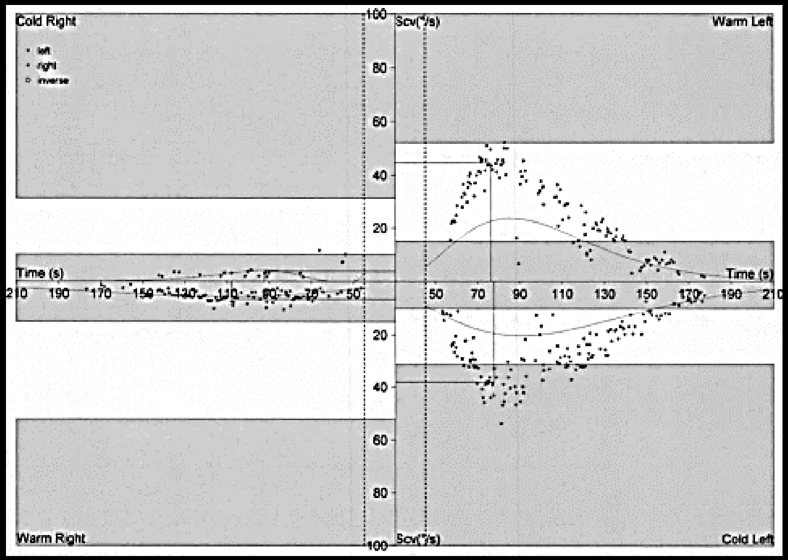
Herman Kingma
Department of ORL, Head Vestibular Clinic, Maastricht University Medical Centre, The Netherlands
Faculty of Physics, Tomsk Research State University, Russian Federation

what’s the diagnosis?

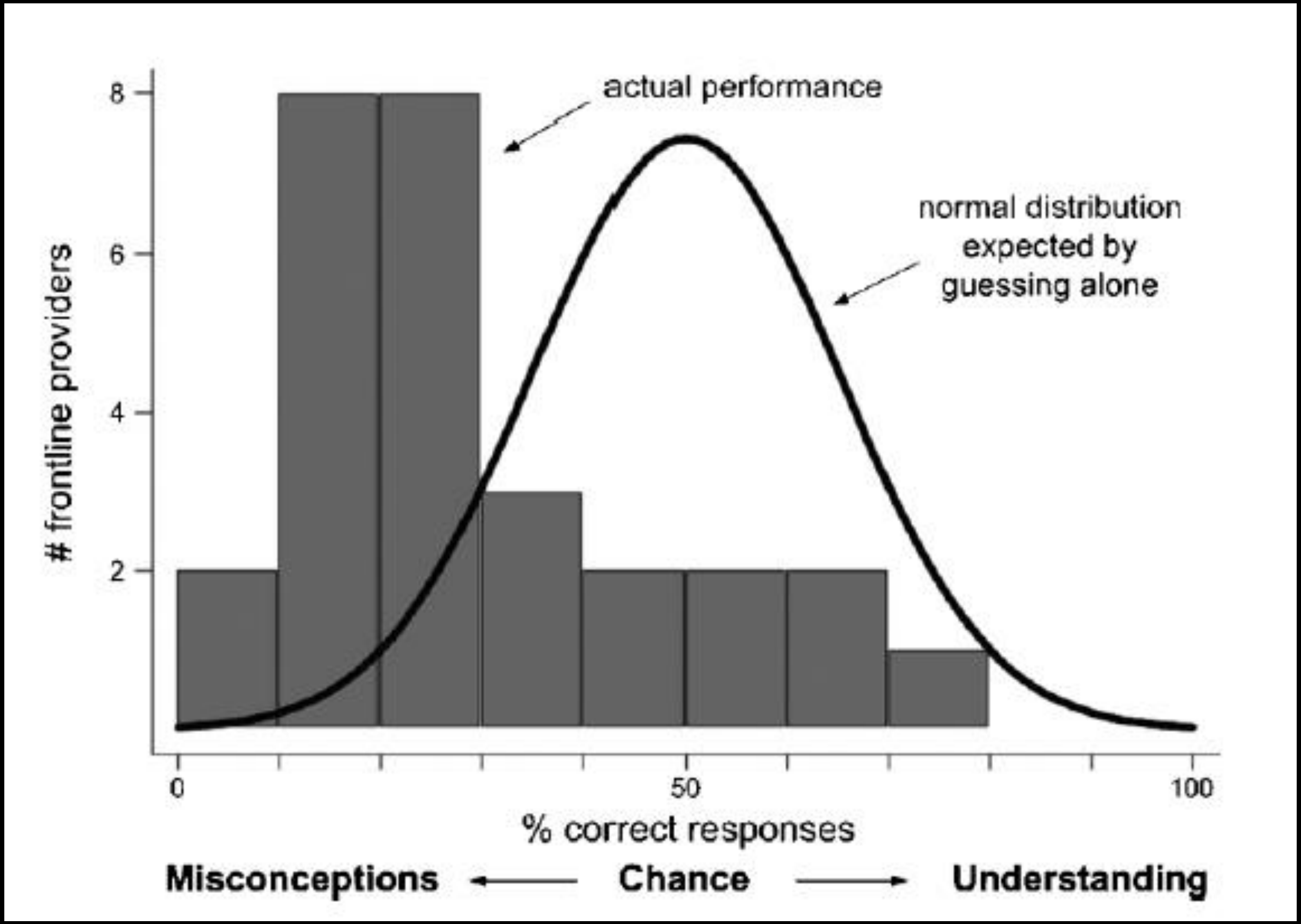
patient complaining of “dizziness”

R





acute vertigo: misconceptions (n=28)



misconceptions: background

Acute Vestibular Syndrome (AVS) at emergency department

- 81% of cases: nystagmus inconsistent with diagnosis
- misconception → misdiagnosis
  - 40.000-70.000/year → potentially 10.000-30.000 deaths/year

<u>causes:</u>

- too much emphasis on “type” of vertigo
- <50% shows classical neurological signs
- sensitivity CT of posterior fossa: +/-16%

History taking: Steps – Questions?

Step 1: Timing

Acute | Episodic | Chronic | Episodic + Chronic

Step 2: Triggers

Step 3: Describe dizziness

SO STONED

Step 4: Is chronic involved?

yes

DISCO HAT

Step 5: Subjective = Objective?

HADS + DHI

misconceptions: prevention

focus on Timing and Triggers not on "Type"

TiTrATE

- Timing
- Triggers
- And Targeted Examination

misconceptions: prevention

Triage
- identify obvious dangerous causes by the presence of prominent associated symptoms, abnormal vital signs, altered mental state, or ancillary test results

Timing
- narrow the differential diagnosis by classifying the dizziness attack pattern as episodic, acute, or chronic in duration in the history of present illness

Triggers
- seek an underlying pathophysiologic mechanism by searching for obvious triggers (eg, positional) or exposures (eg, trauma) in the review of systems

Targeted Examination
- differentiate benign versus dangerous causes within a timing-trigger category using specific bedside findings, emphasizing a targeted eye movement examination

Test
- choose the best laboratory or imaging test when there is clinically relevant residual uncertainty about a dangerous cause that has not been ruled out

timing and triggers

timing	trigger	syndrome	diagnosis benign	diagnosis dangerous
episodic	trigger	t-EVS	BPPV orthostasis	CPPV/Tumor internal bleeding vascular stenosis vertebral artery
	spontaneous	s-EVS	Meniere's Migraine SCDS paroxysms vasovagal panic	arrhythmia/MI TIA pulmonary embolus hypoglycemia
acute	postexposure	t-AVS	perilymphatic fistula	skull base fracture vertebral dissection drugs (genta, AED) carbon monoxide, etc.
	spontaneous	s-AVS	neuritis labyrinthitis	CVA/Vertebral Wernicke's/encephalitis other internal / neuro
chronic	context		e.g. Vestibular hypofunction	
	spontaneous		e.g. Cerebellar degeneration	

Timing and Triggers

3 syndromes + 1:

Acute

Episodic

Chronic

Timing and Triggers

3 syndromes + 1:

Acute

Episodic

Chronic

Episodic + Chronic

Timing and Triggers

PANIC!!!

3 syndromes + 1:

Acute

Episodic

Chronic

Episodic + Chronic

History taking: Steps

History taking: Steps

Takes time → Saves time

History taking: Steps

Step 1: Timing?

Acute	Episodic	Chronic

History taking: Steps

Step 1: Timing?

Acute

Episodic

Chronic

Step 2: Triggers

History taking: Steps

Triggers can be obvious:

History taking: Steps

Step 1: Timing

Acute | Episodic | Chronic

Step 2: Triggers

History taking: Steps

Step 1: Timing

Acute

Episodic

Chronic

Step 2: Triggers

Step 3: Describe dizziness

SO STONED

History taking: SO STONED

• Symptoms:	vertigo, instability, dizziness, etc.
• Occurence:	how often?
• Since:	when?
• Triggers:	head movement, no trigger, etc.
• Otological:	hearing, tinnitus, etc.
• Neurological:	migraine, loss of conciousness, etc.
• Evolution:	how did it evolve?
• Duration:	how long does the dizziness last?

History taking: SO STONED

WATCH OUT!!!

1. Deadly D's:
   - Dysarthria
   - Diplopia
   - Dysphagia
   - Dysphonia
   - Dysmetria
   - Dysesthesia

2. Headache: 3xS
   - Sudden
   - Severe
   - Sustained

History taking: Steps

Step 1: Timing

Acute

Episodic

Chronic

Step 2: Triggers

Step 3: Describe dizziness

SO STONED

History taking: Steps

Step 1: Timing

Acute | Episodic | Chronic | Episodic + Chronic

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SO STONED

Step 4: Is chronic involved?

yes

DISCO HAT

History taking: DISCO HAT

- Darkness
- Imbalance
- Supermarket effect / visual vertigo / optokinetic
- Cognitive functions
- Oscillopsia

- Head movements (fast)
- Autonomic functions
- Tiredness

History taking: DISCO HAT

- Darkness
- Imbalance
- *Supermarket effect / visual vertigo / optokinetic*
- Cognitive functions
- Oscillopsia

- Head movements (fast)
- Autonomic functions
- Tiredness

History taking: DISCO HAT

History taking: DISCO HAT

- Darkness
- Imbalance
- Supermarket effect / visual vertigo / optokinetic
- Cognitive functions
- *Oscillopsia*

- Head movements (fast)
- Autonomic functions
- Tiredness

History taking: DISCO HAT

Oscillopsia:

History taking: DISCO HAT

- Darkness
- Imbalance
- Supermarket effect / visual vertigo / optokinetic
- Cognitive functions
- Oscillopsia

- *Head movements (fast)*
- Autonomic functions
- Tiredness

History taking: DISCO HAT

Head Impulse Test:

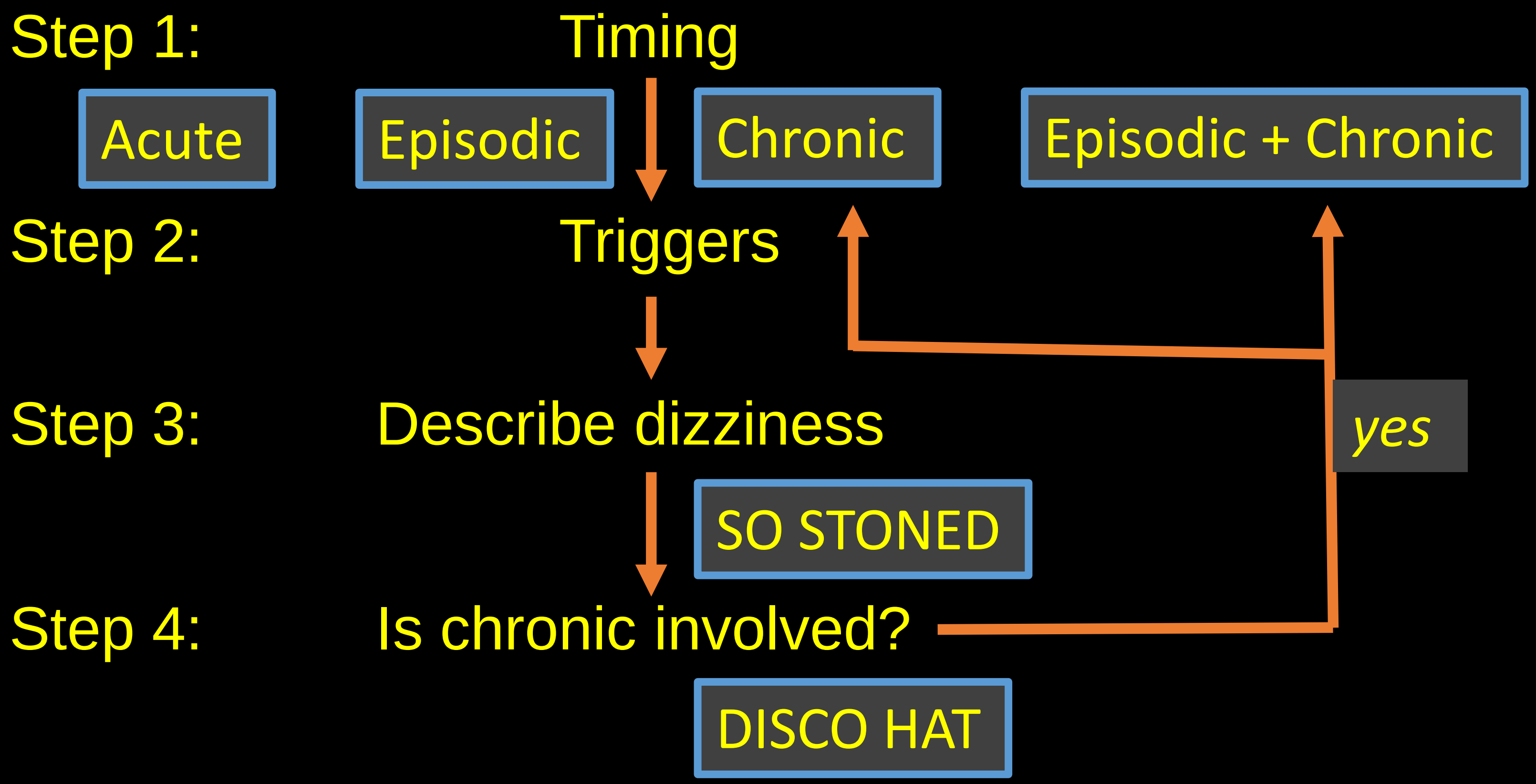
History taking: DISCO HAT

- Darkness
- Imbalance
- Supermarket effect / visual vertigo / optokinetic
- Cognitive functions
- Oscillopsia

- Head movements (fast)
- Autonomic functions
- Tiredness

THE OTHER SIDE DOES NOT TAKE OVER!

History taking: Steps



History taking: Steps

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Acute | Episodic | Chronic | Episodic + Chronic

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DISCO HAT

Step 5: Subjective = Objective?

History taking: Steps

Step 1: Timing

Acute

Episodic

Chronic

Episodic + Chronic

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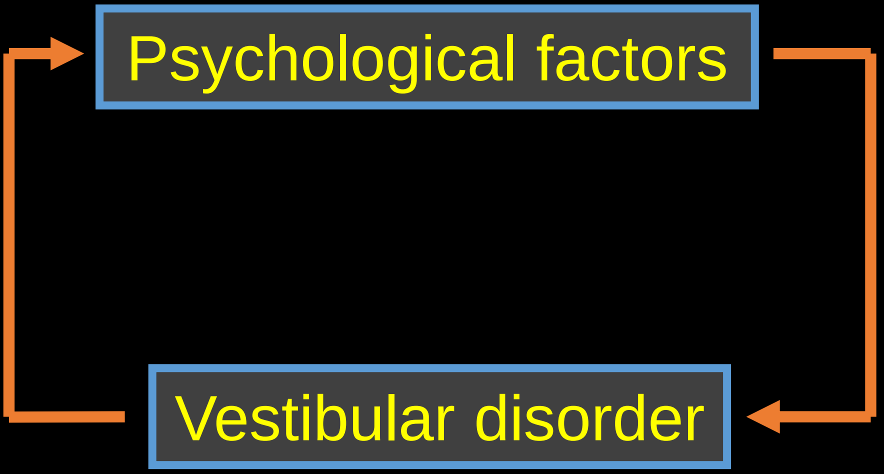
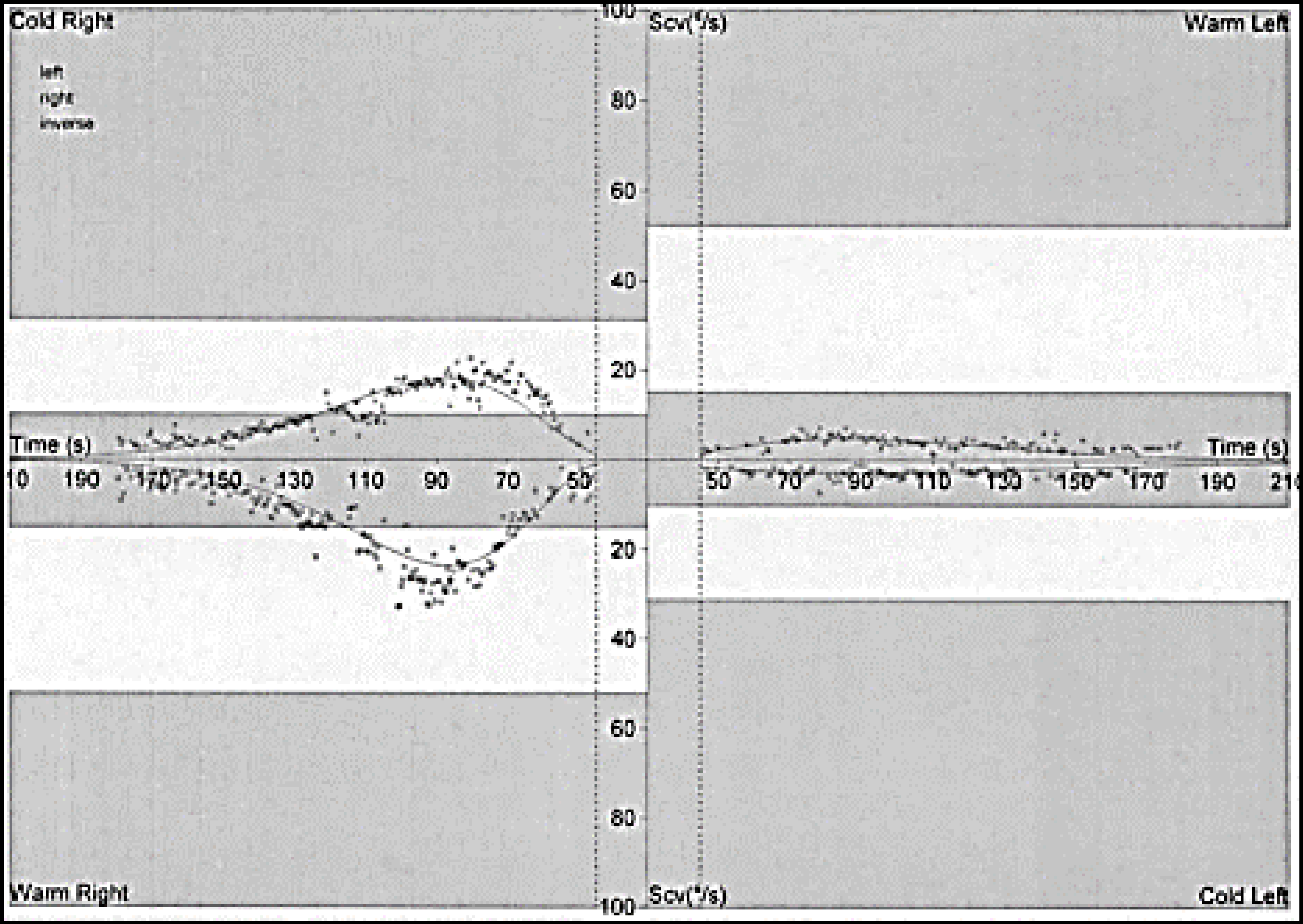
HADS + DHI

History taking: Psychology



History taking: Psychology

History taking: Psychology



History taking: Pitfalls

Pitfalls: Episodic vertigo

<u>Cases:</u>

- 3 patients, same story: >1 week “dizzy”
- Examination: Vestibular hypofunction right

What is the first diagnosis that you think of?

Pitfalls: Episodic vertigo

Patient 1: “Actually I was dizzy for 3 days and it took a week to get better”

Patient 2: “Actually I was dizzy for 5 hours but I was unstable for a week”

Patient 3: “Actually I was dizzy with each head movement for 2 weeks, like turning in bed”

Pitfalls: Episodic vertigo

Patient 1: “Actually I was dizzy for 3 days and it took a week to get better” → Neuritis

Patient 2: “Actually I was dizzy for 5 hours but I was unstable for a week” → Ménière’s

Patient 3: “Actually I was dizzy with each head movement for 2 weeks, like turning in bed” → BPPV

Pitfalls: Episodic vertigo

- Patients not always report the whole story: SO STONED
  - Ask for *exact* duration
  - Ask for *triggers*

- Absence of hearing loss, tinnitus, migraine, headache

- Attack is not always reported

Pitfalls: Chronic dizziness

- The other side does not take over: DISCO HAT
- Vertigo is not always present
- Patients can experience a false continuous dizziness
- Fysiological complaints overlap psychological ones
  - *Psychological co-morbidity*

Example

Since 2 years multiple spontaneous attacks of vertigo.

<u>The average attack includes:</u>

- Sudden sensation of vertigo
- Hearing loss on the left, aural pressure and tinnitus (high pitching sound)
- No flashes, no photo- or phonophobia, no headache, no aura’s, no migraines in the past
- No other neurological signs

Duration: 5 minutes – 2 hours

Frequency: 2-5x each month

<u>In between attacks:</u>

- Darkness no effect, imbalance yes, supermarket effect yes, no problems with concentration or memory, no oscillopsia, instable with fast head movements, no orthostatic hypotension, more tired

Diagnosis: Meniere’s syndrome left with unilateral hypofunction

Example

Timing & Triggers

Since 2 years multiple spontaneous attacks of vertigo.

The average attack includes:
- Sudden sensation of vertigo
- Hearing loss on the left, aural pressure and tinnitus (high pitching sound)
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SO STONED

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- Darkness no effect, imbalance yes, supermarket effect yes, no problems with concentration or memory, no oscillopsia, instable with fast head movements, no orthostatic hypotension, more tired

DISCO HAT

Diagnosis: Meniere's syndrome left with unilateral hypofunction

Conclusions

- Abandon classical approach of “type of dizziness”
  - Timing & Triggers
  - SO STONED
  - DISCO HAT
- Classify dizziness: 4 syndromes
- Recognize pitfalls:
  - No vertigo necessary
  - Other side does not take over
  - Psychological co-morbidity

History taking: Steps – Questions?

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Acute | Episodic | Chronic | Episodic + Chronic

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Step 3: Describe dizziness

SO STONED

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DISCO HAT

Step 5: Subjective = Objective?

HADS + DHI