

Prevalence and determinants of medication nonadherence in patients with hypertensive crisis admitted to an emergency ward

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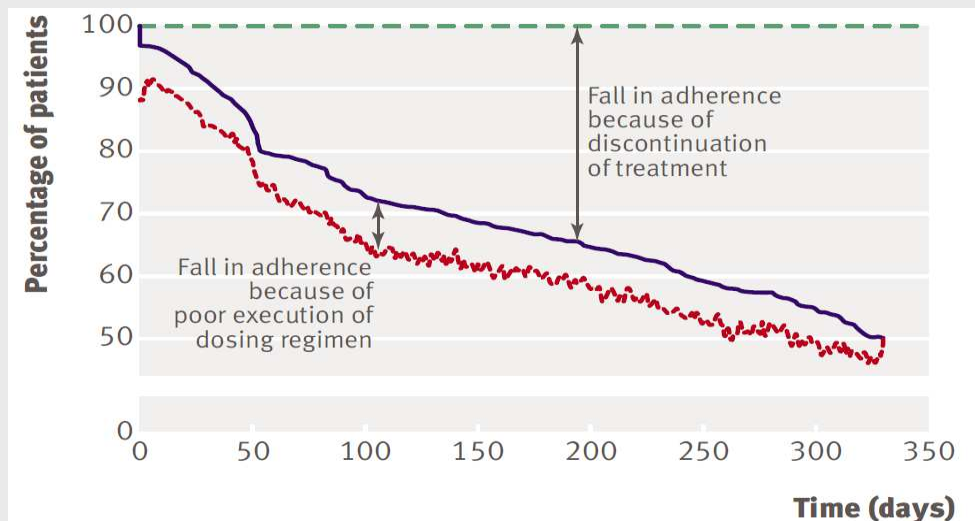


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Background

- Hypertensive crisis can be a medical emergency.
- Insufficient blood pressure control often caused by nonadherence to antihypertensive drugs



Vrijens B et al. *BMJ*. 2008;336: 1114–1117

Nonadherence underlying „resistant“ hypertension

(Jung O et al. J Hypertens. 2013;31:766–74)

40/76 patients with uncontrolled hypertension under ≥ 4 medications
not fully adherent!

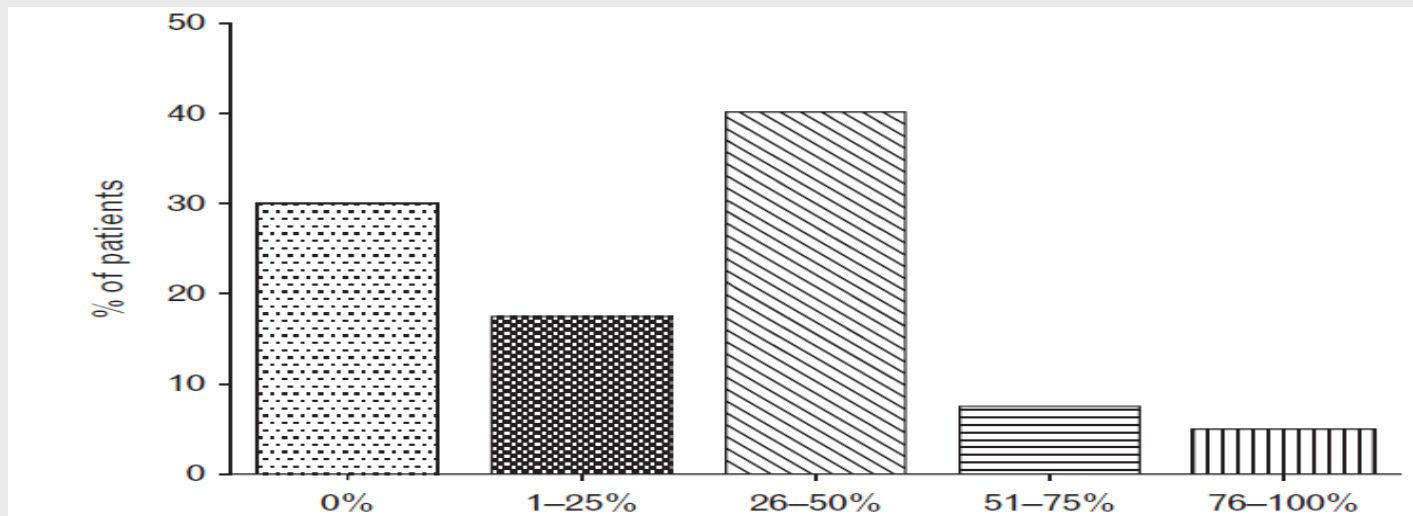


FIGURE 3 Percentage of prescribed drugs taken by nonadherent patients.

Aim



To study the prevalence and predictors of (partial or total) antihypertensive nonadherence using both subjective and objective measures of adherence in patients with hypertensive crisis admitted to a medical emergency ward.

Method

- N=100 consecutive patients (*BP* >180/120 mmHg)
- N=79 had been prescribed ≥ 1 antihypertensives before and provided urine samples
- Urine samples analyzed by gas chromatography / mass spectrometry
- Self-rating questionnaires
 - Adherence (MARS-D, RAI), beliefs about medications (BMQ)
 - Cardiac and generalized anxiety, depression (CAQ, HADS)
 - General self-efficacy (GSE), optimism/pessimism (LOT),
 - social support (ESSI)
 - Illness perceptions (IPQ), quality of life (SF-12)

Baseline data I (n=79)

	Mean (SD) or N (%)
Age (y.)	68.2 (11.89)
Female sex	45 (57%)
Cohabiting	51 (63.3%)
Retired	54 (68.4%)
BMI (kg/m ²)	28.7 (7.0)
BMI >30kg/m ²	28 (35.4%)
Current smokers	15 (19%)
Mean blood pressure (mmHg)	199.4 (15.8) / 104.7 (15.8)
Number of antihypertensives	2,63 (1,34)

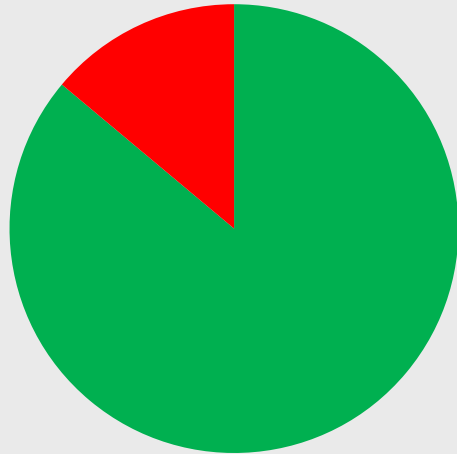
Baseline data II (n=79)

Hx of stroke	13 (16.5%)
Diabetes	18 (22.8%)
Heart failure	5 (6.3%)
CHD	23 (29.1%)
Renal failure	9 (11.4%)

Beta blockers	53 (67.1%)
AT-II blockers	37 (46,8%)
Thiazide diuretics	34 (43.0%)
ACE inhibitors	34 (43.0%)
Calcium antag.	31 (39.2%)
Loop diuretics	14 (17.7%)
Alpha-2 antagonists	9 (11.4%)
Nitrates	6 (7.60%)
Alpha blockers	5 (6.30%)
Others	6 (7.60%)

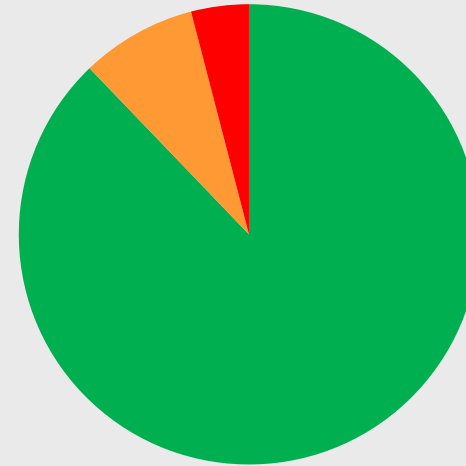
Subjective reports of adherence

Medications taken ...



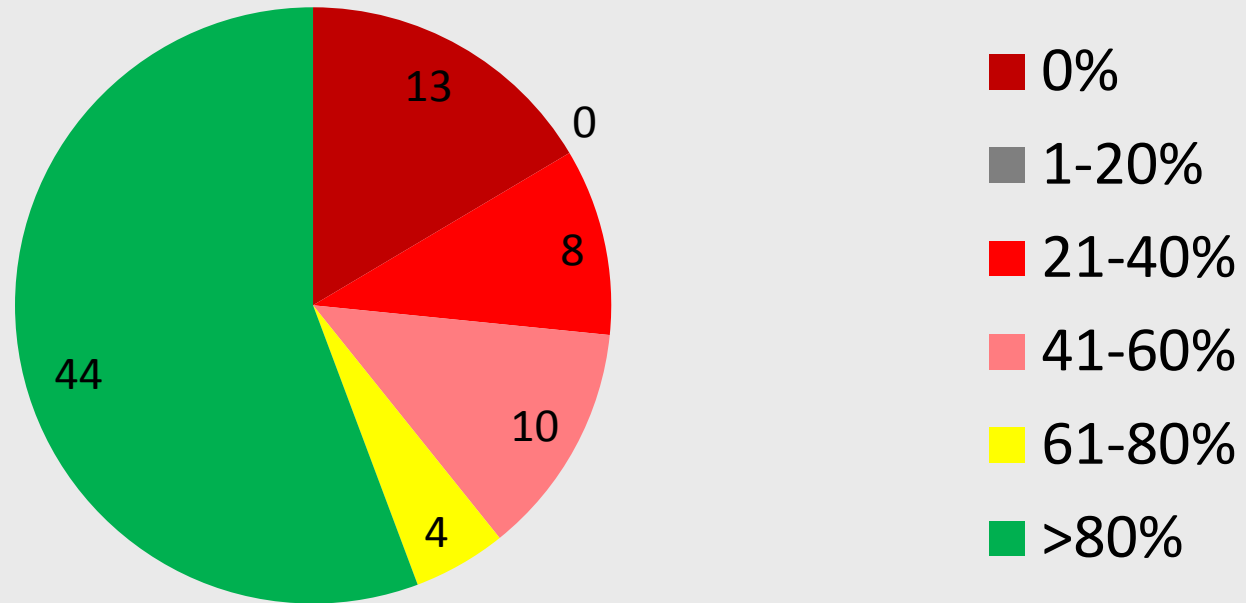
■ As prescribed
■ Not as prescribed

Arbitrarily discontinued...



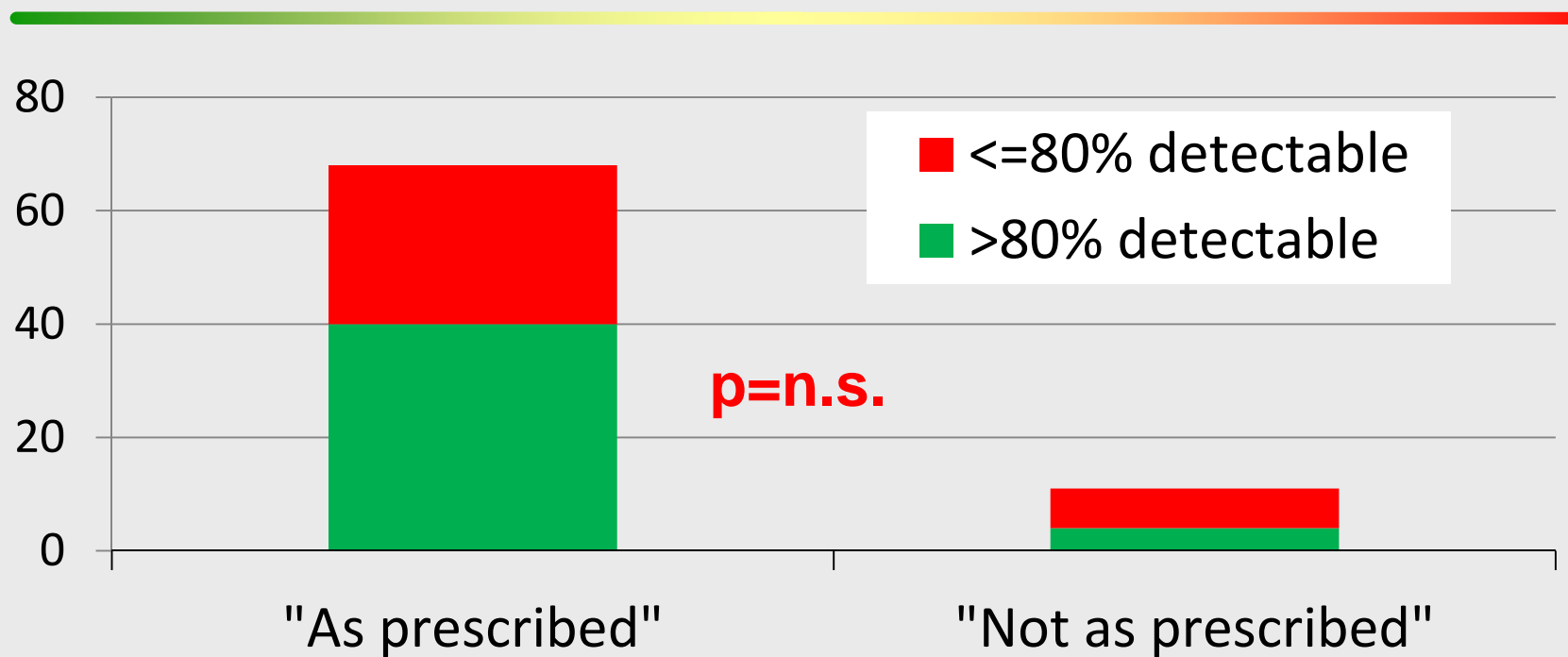
■ Hardly ever ■ Very rarely
■ occasionally

Percentage of drugs detectable

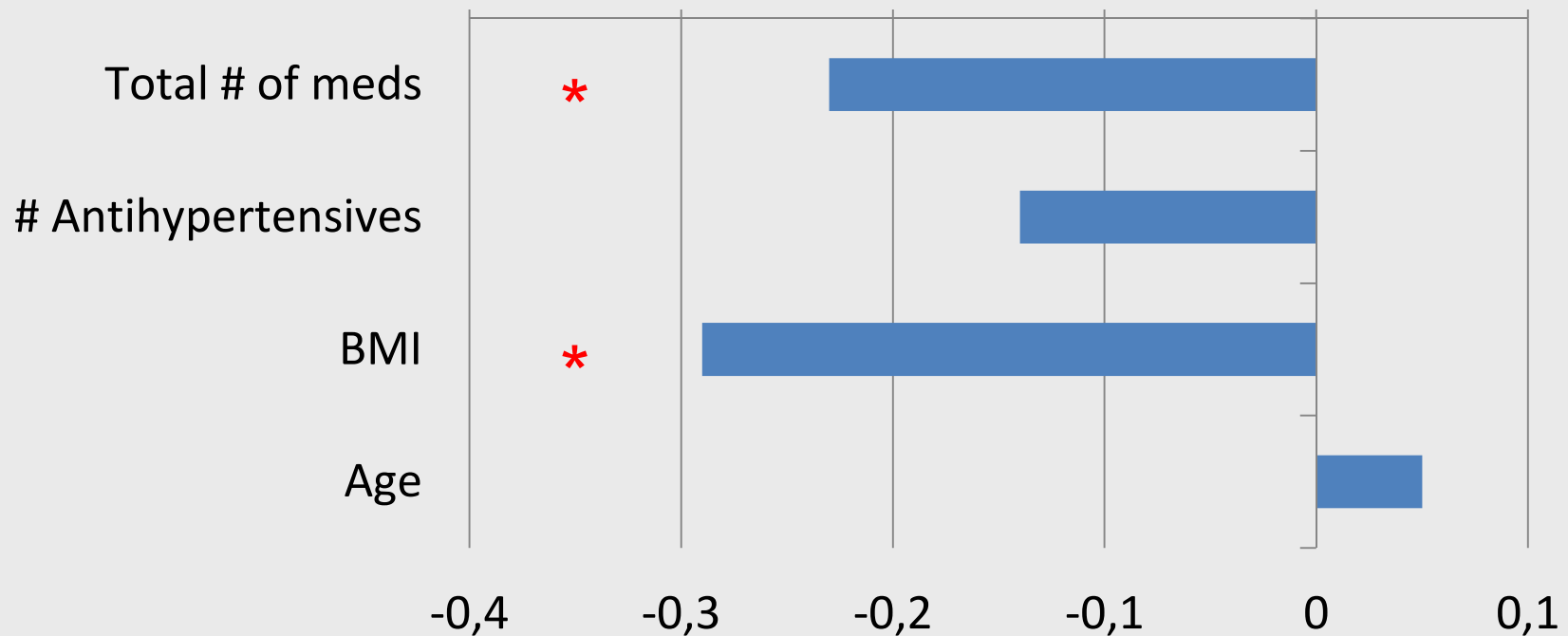


Average detection rate per patient: **69%**

Objective vs. self-rated adherence



Predictors (ρ) of antihypertensive drug detection rate



No linear effect on objective adherence of...

- Validated adherence rating scales (MARS, RAI)
- Beliefs about medications
- Knowledge about hypertension
- Illness perception
- Social support
- Self-efficacy
- Optimism / pessimism
- Generalized or cardiac anxiety, depression
- Quality of life

Cluster analysis:

Objective adherence, anxiety, depression, self-efficacy

Cluster	Objective adherence	Anxiety	Depression	General self efficacy
1 (n=18)	0.25±0.24	8.9±2.6	2.6±1.9	19.1±2.8
2 (n=19)	0.54±0.41	14.3±2.8	10.7±4.1	13.2±2.2
3 (n=37)	0.96±0.13	9.0±3.9	4.0±3.5	19.5±2.1
Signif.	p<0.0005 1 vs.2; 1 vs. 3; 2 vs. 3	p<0.0005 1 vs.2;3 vs. 2	p<0.0005 1 vs.2; 3 vs. 2	p<0.0005 1 vs.2; 3 vs. 2

Summary / conclusions

- Nonadherence was frequent in patients with hypertensive crisis.
- Large discrepancies between objective and subjective measures of adherence.
- No linear associations of psychological variables with objective adherence.
- Three discernible clusters with grossly different levels in adherence, anxiety, depression, and self-efficacy (*well-adapted & adherent; distressed, reduced adherence; nonadherent deniers?*)