Hypertension is Not Always Simple !!

(Case-based Presentation)

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- 45 years old pre-menopausal lady with irrelevant past medical history apart from low blood pressure earlier in life
- During last 2 years she had repeated bouts of rapid onset severe headache, flushing, chest tightness, and palpitation associated with BP elevation up to 240/140 mmHg (at home and office) with no specific triggers and no apparent emotional background.
- All BP measurements between attacks were normal

- Repeated medical consultations and lab. work-up all were unrevealing
- More recently attacks become more frequent (every few days) with exaggerated symptoms and repeated hospital admissions.
- Psychosocial history:

  Unremarkable apart from old severe psychic trauma related to husband abuse and divorce 5 years ago.

Physical EX.

- HR : 88/m
- BP : 130/74 mmHg (no anti-hypertensive drugs)
- Otherwise unremarkable

Premenopausal Lady with Severe

Symptomatic Paroxysmal BP Surges

Clinical Possibilities ??

1. Pheochromocytoma
2. Panic attacks with BP elevation
3. Hypertensive crisis
4. White-coat hypertension
5. Something else

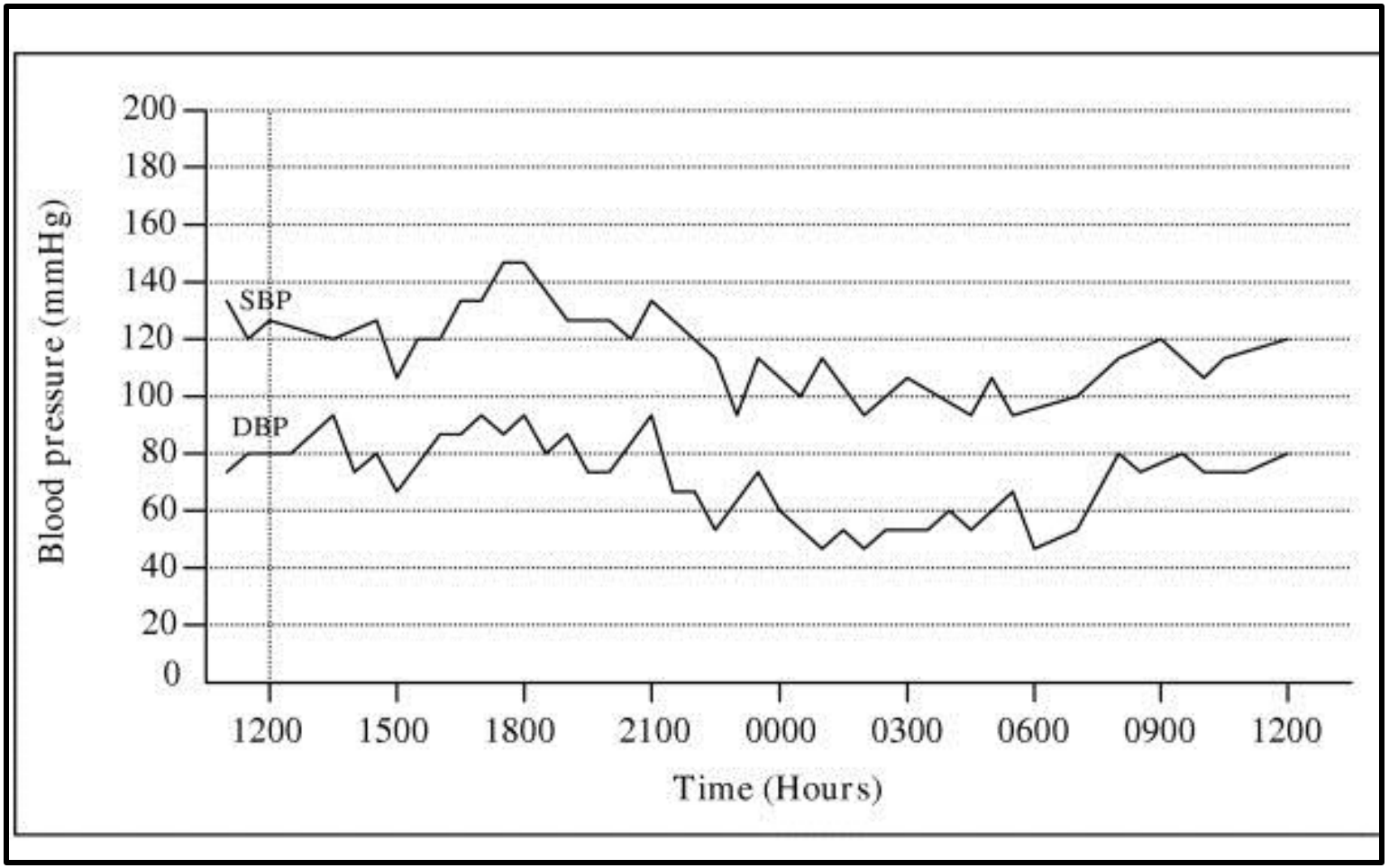
Work-up

- ECG and Echocardiograpgy: unremarkable
- Thyroid and renal profiles: unremarkable
- 24-hours ABPM: Normal BP values
- 24-hours urinary metanephrines: Normal

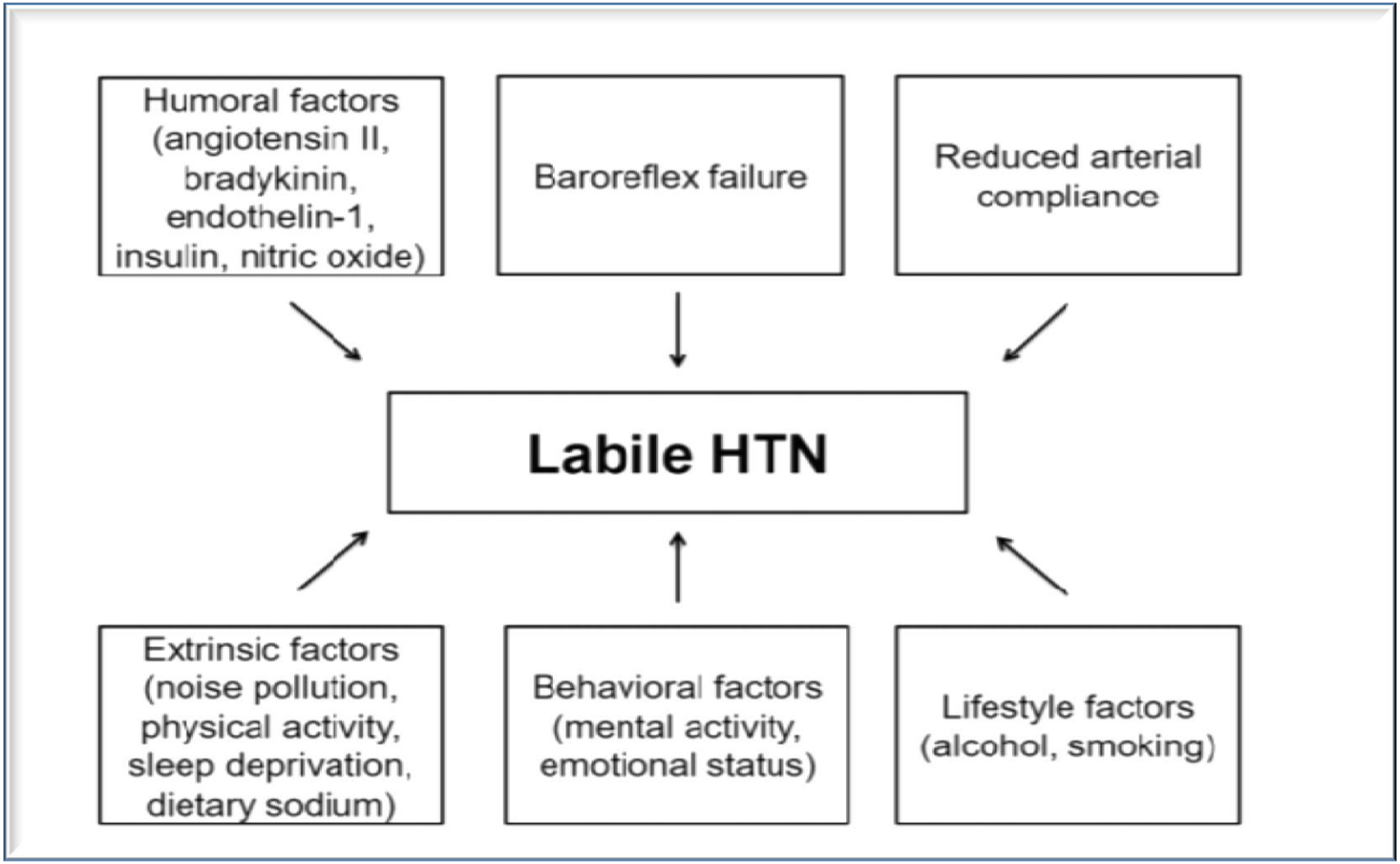
Clinical Possibilities ??

1. Pheochromocytoma
2. Panic attacks with BP elevation
3. Hypertensive crisis
4. White-coat hypertension
5. **Something else**

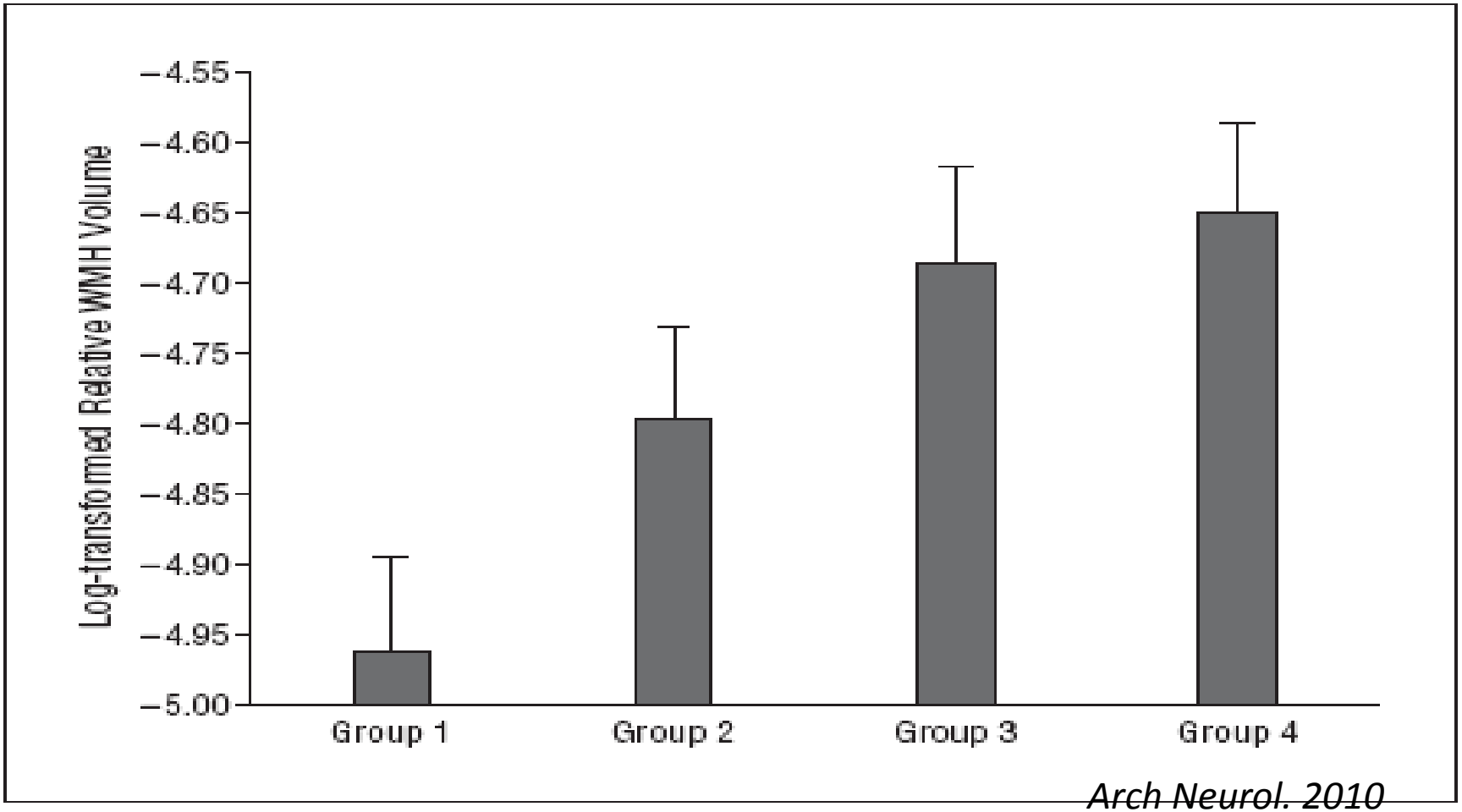
Normal Human BP is Variable



Pathophysiology of BP Lability



BP Fluctuation and Cerebrovascular Disease in an Elderly Cohort



Arch Neurol. 2010

Labile hypertension

Unanswered Questions:

- What is abnormal BP lability ??
- Does BP lability affect CV outcome in normo- and hypertensive patients??
- When and how to treat this lability ??
- Does treatment improve CV outcome??

When BP Lability Should be Addressed ?

- **Extreme BP surges (sys. > ٢١٠ mmHg)**
- **Associated troublesome physical symptoms**
- **Associated vulnerable conditions**
  - Chronic aortic dissection
  - Cerebral aneurysm
  - Cerebral Haemorrhage
  - Marfan syndrome
  - CAD

Causes of Symptomatic Paroxysmal HTN

Common:

- Panic Attacks
- Peudo-pheochromocytoma

Uncommon:

- Pheochromocytoma
- Hyperthyrodism, post-menausal, Migrain,
- Brain tumours, carcinoid syndrome, Cocain use

Pheochromocytoma

- Is rare
- < 2 % in patients with symptomatic paroxysmal HTN
- Practically excluded by – ve biochemistry

Panic Attacks

50% of cases of symptomatic

Paroxysmal HTN

Panic Attack

Defined as a discrete period of intense fear or discomfort that develops abruptly and reaches a peak within 10 minutes accompanied by at least 4 of the following 13 somatic and cognitive symptoms:

- **Shortness of breath,**
- **Dizziness,**
- **Palpitations,**
- **Trembling,**
- **Sweating,**
- **Feeling of choking,**
- **Nausea/abdominal distress,**
- **Depersonalization,**
- **Paresthesias,**
- **Flushes/chills,**
- **Chest pain,**
- **Fear of dying,**
- **Fear of going crazy or fear of doing something uncontrolled .**

Pseudo-pheochromocytoma

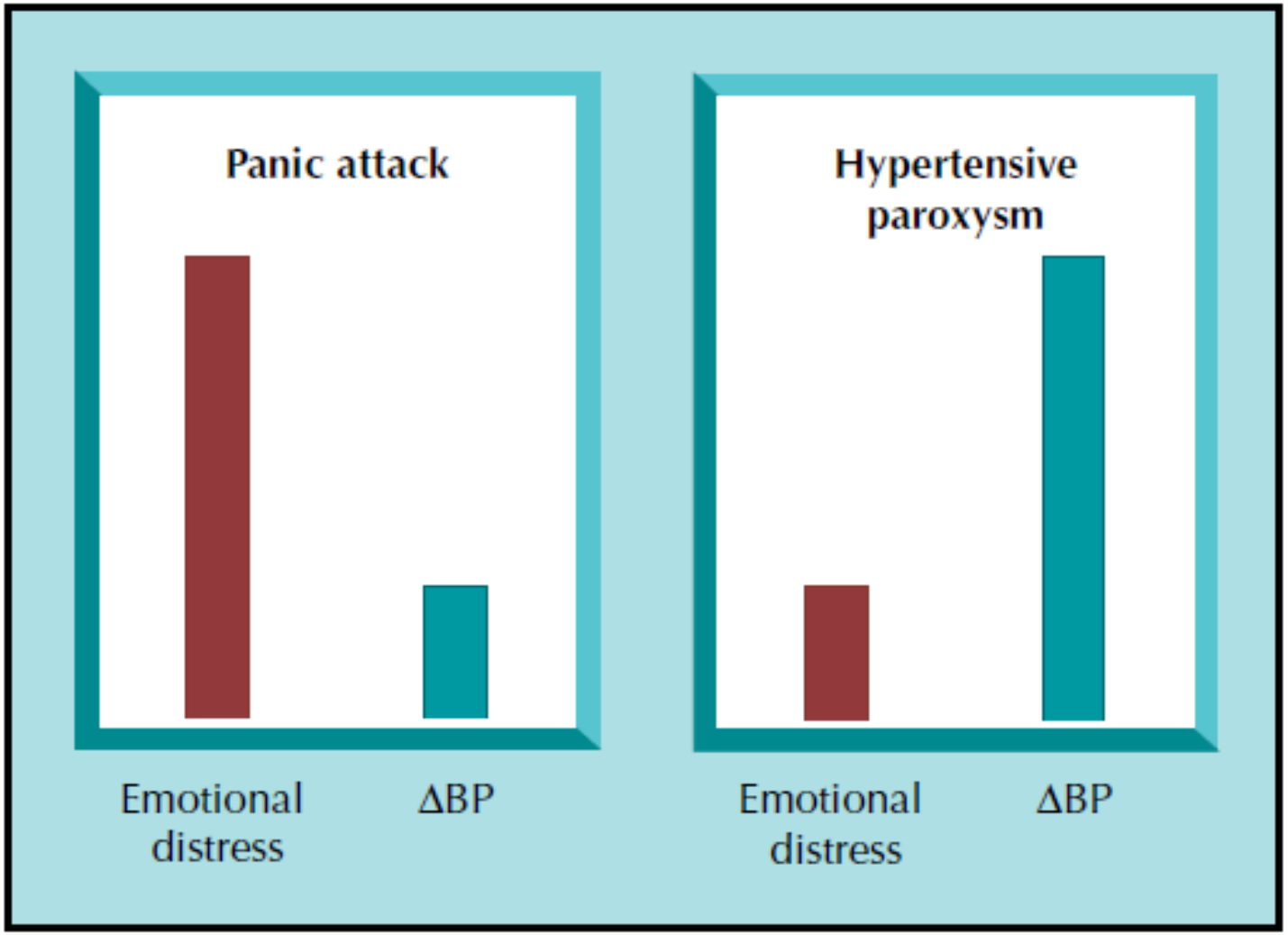
- More common than pheochromocytoma
- Less common than panic attacks

Pseudo-pheochromocytoma

Table 1. Clinical features characteristic of pseudopheochromocytoma

1. Hypertensive paroxysms characterized by sudden onset
2. Blood pressure elevation is associated with physical symptoms (eg, headache, flushing, fatigue, dizziness)
3. Episodes are not triggered by emotional distress or panic
4. Biochemical tests have been performed and do not support the diagnosis of pheochromocytoma
5. In nearly all cases, inquiry into psychosocial factors reveals either a history of unusually severe abuse or trauma, or a defensive, very even-keeled personality style

Panic VS Pseudo-pheochromocytoma



Pathophysiology

- SNS activation
- Repressed old psychological trauma

What are the Possibilities?

1. Pheochromocytoma
2. Panic attacks with BP elevation
3. Hypertensive crisis
4. White-coat hypertension
5. ***Pseudopheochromcytoma***

Management

- **Difficult to cure**
- **Psychiatric consultation is Preferred**
- **Treatment lines:**
  - Anti-HTN pharmacotherapy
  - Psychopharmacological
  - Psychatric intervention

1. **Antihypertensive drug therapy**

   a. Acute management of hypertensive paroxysms

      i. IV labetalol or nitroprusside

      ii. Clonidine

   b. Preventive management

      i. Combined α- and β-blockade

2. Psychopharmacologic treatment

a. Acute management of hypertensive paroxysms

i. Alprazolam +/– clonidine

b. Preventive management

i. Antidepressant agent (SSRI or tricyclic)

ii. Anxiolytic agent (eg, clonazepam)

3. Psychological interventions

a. Physician intervention

i. Reassurance

ii. Psychological awareness

b. Psychotherapy

Treatment

- Patient referred for a psychiatrist who confirmed repressed emotional background
- SSRIs and sedatives were Prescribed
- Carvidalol started at 12.5 mg uptitrated to 25 mg bid
- Dramatic improvement in the frequency and severity of hypertensive paroxysms.

Conclusions

- Human BP is normally variable over time
- Labile BP should be addressed if it is severe, symptomatic, or associated with vulnerable diseases
- Panic attacks and pseudo-pheochromocytoma are more common than pheochromocytoma in paroxysmal symptomatic HTN.
- Combined alpha and beta blocking drugs are preferred anti-HTN combination in labile and paroxysmal symptomatic HTN

Thank You

Remaining Qs

- Does paroxysmal HTN carry Risk ??
- Does Paroxysmal HTN need treatment??

Possible Causes

- Simple post-menopausal symptoms
- Migrain
- Pheochromocytoma
- Panic attacks
- Hypertensive crisis
- Primary labile hypertension
- Hyperthyroidism
- White coat hypertension
- Pseudo-pheochromocytoma

Work-up

- Confirm HTN diagnosis
- Assess Target organ damage (TOD)
- Look for a cause of paroxysmal, severe, symptomatic HTN

2nd Visit

- Feeling dizzy and exhausted with home BP 110/70 and no more attacks
- HR: 110 b/m
- BP: 160/95 mmHg

- She brought the work-up results

- HR: 90/m
- BP: 140/95 mmHg
- Unremarkable other findings

- S. creat. : 1.3 mg%
- S. K: 3.8 meq/L
- TSH: 1.3
- Urinalysis: unremarkable
- Plasama metanephrines: normal

- Abdominal ultrasound : Normal kidney size with no detectable masses
- ECG: LA enlergment
- Echocardiography: Gtade II/IV diastolic dysfunction with mild LA enlargement. No LVH.

- 24-hour ABPM:
- Average 24-hour BP 130/ 82 mmHg
- Average day time BP 135/ 85 mmHg

Possible Causes

- Simple post-menopausal symptoms
- Migrain
- Pheochromocytoma
- Panic attacks
- Hypertensive crisis
- Primary labile hypertension
- Hyperthyroidism
- White Coat hypertension
- Pseudo-pheochromocytoma

Isolated Office Hypertension

A condition characterized by:

1) office BP greater than 140/90 mm Hg during three different visits;
2) at least two measurements outside the physician's office with BP lower than 140/90 mm Hg;
3) absence of target organ damage;
4) a daytime ambulatory BP lower than 135/85 mm Hg .

European Society of Hypertension Working Group on BP monitoring

Panic Attack

- Defined as a discrete period of intense fear or discomfort that develops abruptly and reaches a peak within 10 minutes

- Accompanied by at least 4 of the following 13 somatic and cognitive symptoms:

  - shortness of breath,
  - dizziness,
  - palpitations,
  - trembling,
  - sweating,
  - feeling of choking,
  - nausea/abdominal distress,
  - depersonalization,
  - paresthesias,
  - flushes/chills,
  - chest pain,
  - fear of dying,
  - fear of going crazy or fear of doing something uncontrolled .

Pseudo-pheochromocytoma

Back to the patient

- Referred to a psychatrist for better decleration of the background psychosocial status

- Psychatrist explore …… and adviced
- SSRIs
- Anxiolytic

- Amlodipine was stopped and home blood pressure monitoring was advised
- Bisoprolol was replaced by Carvidolol 25 mg bid

- No more attacks, no more dizziness
- Last Home blood pressure 125/ 75 mmHg

- HR: 80 b/m
- BP : 145/ 90 mmHg