مطالعات گسترده ژنتیکی و یافته‌های آن در بیماری‌های چند عاملی

پیامبر ی بر فهرست حسین دبیر جمعیت ایرانی (۴)
بدر النعمة
وبینار مطالعات جنرالی و شخصی دنیای پزشکی جنرالی: پیامدی عوامل در جمعیت ایران

امین بازاموزی با شناسه: 166828
ساعت پژوهش: 10-11:30
تاریخ: 13/5/1400

Genome-Wide Association Studies and its importance on multifactorial diseases

طراحی و تحلیل داده‌های مطالعات جنرالی و شخصی دنیای پزشکی جنرالی

Design and Analysis of Genome-Wide Association Studies

رویکرد پزشک شخص سرور در پیشگیری و کنترل پرفشاری خون

Personalized Medicine approach in hypertension

Genetic and environmental risk profile and high blood pressure event in the Iranian population

http://ircme.ir
• Global burden of HTN is rising due to escalating obesity & aging ... one third of the world by 2025.

• High BP: causing two thirds of all strokes, half of all IHD, renal failure, blindness ... (leading cause of mortality & morbidity)

• Half of this disease burden: occurs in
  • HTN (>140/90), other half in pre HTN
Most people with high blood pressure DO NOT KNOW THEY HAVE IT.

1 in 4 men have hypertension

1 in 5 women have hypertension
HTN

- <1 in 5 under control
- Every 20/10 mmHg higher BP=X2 death from HD or stroke
Although effective medications are available: uncontrolled BP and low adherence to antihypertensive drugs persist as major public health and clinical challenges.

< 30% controlled to < 140/90 mmHg even among those diagnosed as hypertensive and taking antihypertension treatment.

Around one billion individuals are living with uncontrolled hypertension globally.
*prescription of an adequate number and dose of prescribed BP medications

*adherence with therapy.

(On average, only 50% of adults adhere to chronic disease medications)
Importance of Adherence

* Modest changes in adherence: lead to clinically **significant** reductions in BP.

** Small reductions in BP are associated with improvements in mortality, a reduction in **SBP of 3 mm Hg** is associated with an **8%** reduction in **stroke mortality** and a **5%** reduction in **mortality from CAD**.

*** Modest improvements on adherence can have an **appreciable effect** on health outcomes
Initiation: time from prescription until the first dose of the medication is taken.

4% to 20% of patients never start their treatment, despite the fact that they accepted

* Adherence with pharmacotherapy for hypertension 1-year after initiation is typically reported at <50%.

* More prevalent among newly treated hypertensive patients and higher among patients aged <40 years.
Patients’ main reason for not taking their treatment:

- Forgetfulness: 34.3%, n=467
- High cost of the treatment: 26.0%, n=354
- Side effects: 16.8%, n=229
- Feeling well: 11.8%, n=161
- Other reason: 11.0%, n=149

Fig 4. Patients’ main reason for not taking their treatment.
Physician often **undertreat** hypertension
( delay or above goal )

**BP remain elevated** ( when is diagnosed & treated ) in **half** of pts.

Even among pts whose **HTN appears control** by conventional standards, fewer than **one in three** may yet develop subsequent stroke, MI, HF.
Failure of Current Multidrug Approach to Successfully Treat Hypertension

Hypertension Control in Treated Hypertensive Patients

Percentage of Patients (%)

US 53% 41% 29% 34% 50% 16% 61%
Canada 53% 41% 29% 34% 50% 16% 61%
England 53% 41% 29% 34% 50% 16% 61%
Germany Greece Spain Japan
“Drugs don’t work in patients who don’t take them”

“the full benefits of medications cannot be realized at currently achievable levels of adherence”

**ITS MANAGEMENT REQUIRES IMPROVEMENT ( New treatment strategies are needed )**
**guideline** is “a *cord or rope to aid a passer over a difficult point* or to *permit retracing a course,*” which ensures that *climbers stay on the safest path while ascending a mountain.*
Joint National Committee (JNC)

- Panel appointed by the National Heart, Lung, and Blood Institute (NHLBI)
- First guidelines (JNC-1) published in 1977
- Subsequent updates published in 3- to 6-year intervals
- Last edition (JNC-7) published in 2003

Development of JNC-8

• 3 critical questions for adults with hypertension
  • Does initiating antihypertensive pharmacologic therapy at specific blood pressure thresholds improve health outcomes? [When to start therapy?]
  • Does treatment with antihypertensive pharmacologic therapy to a specified blood pressure goal lead to improvements in health outcomes? [How low should I go?]
  • Do various antihypertensive drugs or drug classes differ in comparative benefits and harms on specific health outcomes? [What drug do I use?]

Development of JNC-8

And then we wait…and wait…
But Wait…There’s More

- A multitude of other hypertension guidelines were also published in 2013:
  - AHA/ACC/CDC advisory algorithm
  - American Society of Hypertension/International Society of Hypertension (ASH/ISH)
  - European Society of Hypertension and European Society of Cardiology (ESH/ESC)
  - Canadian Hypertension Education Program (CHEP)
Guidelines

- JNC 1-3 DBP < 90
- JNC 4 (1988) DBP < 90, Isolated SBP < 160
- JNC 5 (1993) < 140/90
- JNC 6 (1997) < 140/90
- JNC 7 (2004) < 140/90, Pre HTN
- JNC 8 (2013) < 150/90 or < 140/90
## Comparisons to Other Guidelines

<table>
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<tr>
<th>BP Goal</th>
<th>JNC-7</th>
<th>JNC-8</th>
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PRIMARY GOAL

TODAY'S PROBLEM
Clinical Practice Guidelines

2020 International Society of Hypertension Global Hypertension Practice Guidelines

| Table 1. Classification of Hypertension Based on Office Blood Pressure (BP) Measurement |
|---------------------------------|-----------------|-----------------|
| Category                        | Systolic (mm Hg)| Diastolic (mm Hg) |
| Normal BP                       | <130            | and             | <85 |
| High-normal BP                  | 130–139         | and/or          | 85–89 |
| Grade 1 hypertension            | 140–159         | and/or          | 90–99 |
| Grade 2 hypertension            | ≥160            | and/or          | ≥100 |

| Table 2. Criteria for Hypertension Based on Office-, Ambulatory (ABPM)-, and Home Blood Pressure (HBPM) Measurement |
|---------------------------------|-----------------|-----------------|
|                                  | SBP/DBP, mm Hg  |
| Office BP                       | ≥140 and/or ≥90 |
| ABPM                             |                |
| 24-h average                    | ≥130 and/or ≥80 |
| Day time (or awake) average     | ≥135 and/or ≥85 |
| Night time (or asleep) average  | ≥120 and/or ≥70 |
| HBPM                             | ≥135 and/or ≥85 |
Established Diagnosis of Hypertension

Grade 1
BP 140–159/90–99 mmHg

Immediate drug treatment in high-risk patients or those with CVD, CKD, DM or HMOD

Grade 2
BP ≥160/100 mmHg

Immediate drug treatment in all patients

Lifestyle advice

ESSENTIAL

Limited drug Availability?

Yes

In those at lower risk, supply lifestyle intervention for 3–6 months. If BP still not controlled and where possible start drug treatment in those aged 50–80 years

No

Drug treatment in low to moderate risk patients without CVD, CKD, DM or HMOD after 3–6 months of lifestyle intervention, if BP still not controlled

OPTIMAL

ESSENTIAL & OPTIMAL
Office blood pressure targets for treated hypertension.
The New ACC/AHA Hypertension Guidelines: Making 130 the NEW 140 and its Impact in Singapore

It’s 130/80!

We’ll stick to 140/90!

- Dr low lip ping, Mt elizabeth medical centre
*SPC*

- Use whatever drugs are available with as many of the ideal characteristics (see Table 9) as possible.
- Use free combinations if SPCs are not available or unaffordable.
- Use thiazide diuretics if thiazide-like diuretics are not available.
- Use alternative to DHP-CCBs if these are not available or not tolerated (i.e. Non-DHP-CCBs: diltiazem or verapamil).
** WHITE COAT HTN (10%-30%) 
NO HMOD, INTERMEDIATE RISK

)** MASKED HTN (10%-15%
SIMILAR RISK OF CV EVENTS AS SUSTAINED HTN

10%) (** RESISTANT HTN
3 DRUGS(INCLUDE DURETIC), AFTER EXCLUDE PSUDO RESISTANT (50%)

** NIGHT TIME HTN
* The average **nocturnal** blood pressure is approximately **15 percent lower** than **daytime** values.

* **Failure** of the blood pressure to **fall** by at **least 10 percent** during sleep is called "**nondipping**," and is a stronger **predictor** of adverse cardiovascular outcomes than **daytime** blood pressure.
* non-dippers benefit from night-time administration of antihypertensive medications, but the same effect has yet to be shown in the dipper population.

* The bedtime administration of all the antihypertensive medications not only can improve the cardiovascular outcomes but also can substantially improve patient compliance and adherence to medication regimen.
**Side effects**: hemorrhagic stroke, ischemic stroke / MI / HF / LVH

**Types**: dipper & non dipper / salt resistance(+-)

**Drug efficacy & side effects**: Different groups with different response
...Cough post ACE inh, edema post amlodipine
Thanks For Your Kind Attentions

Slum area, Chabahar, Sistan & Baluchestan, 5 May 2019