



WHL · NEWSLETTER

News from the World Hypertension League (WHL).
A division of the International Society of Hypertension, and in official relations with the
World Health Organization.

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WHL News

Higher than optimal and hypertensive blood pressure values in children and adolescents in Germany



Dr. H. Neuhauser

Detrimental health effects of higher than optimal blood pressure such as early target organ damage have been found not only in adults but also in children [1, 2]. Blood pressure in children varies with age, sex and growth. Therefore, percentile curves are used as a reference system to determine high blood pressure, and hypertension respectively, in this age group. This makes it complicated to determine hypertension in children because normal and abnormal blood pressure values are difficult to remember. According to a recent large study, pre-hypertension and hypertension were considerably underdiagnosed among children age 3-18 [3].

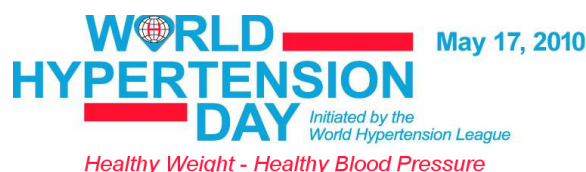
It was hypothesized that this might also be due to uncertainties in diagnostic criteria. When children had blood pressure values close to the commonly used cut-off values in adults, however, a higher rate of diagnosis was observed [3]. In order to demonstrate the prevalence of higher than normal (RR \geq 120/80 mmHg) and hypertensive (RR \geq 140/80 mmHg) blood pressure values as measured on a single occasion among children in Germany blood pressure data from a large representative population survey were evaluated.

Methods

The German Health Interview and Examination Survey for Children and Adolescents is a

continued on page 2

World Hypertension Day 2010



This year WHL has chosen “*Healthy Weight-Healthy Blood Pressure*” as the theme for WHD 2010. Keeping in mind that more than 1 Billion adults worldwide are overweight and over 300 million of them are obese, the WHL intends to bring about public awareness of overweight/obesity and its immediate effect on hypertension. As weight has either direct or indirect effect on heart disease, stroke, kidney disease and diabetes, WHL has joined forces with International Society of Hypertension (ISH), World Action on Salt and Health (WASH), World Kidney Day (WKD) jointly sponsored by International Society of Nephrology (ISN) and International Federation of Kidney Foundations, and the International Diabetes Federation (IDF) to promote WHD 2010.

The WHD 2010 poster and brochure can be downloaded from the WHL website:
<http://www.worldhypertensionleague.org>

Contents	Page
- WHL News	
Blood pressure values in children and adolescents in Germany	1
World Hypertension Day 2010	1
- WHL Board turn over & Welcome to new WHL Board members	3
- People	4
- Calendar	4

WHL News continued

population-based cross-sectional health examination study conducted during 2003–2006. A representative sample of 8656 girls and 8985 boys aged 0–17 years living in Germany (response rate 66.6%) were recruited [4]. Blood pressure measurements were performed from age 3 onwards, using an automated oscillometric device (Datascope Accutorr Plus). Measurements were taken on the right arm in sitting position with the elbow at the level of the right atrium, using one of four cuff sizes. Two consecutive measurements were made and the mean of the two measurements was used for analysis. In addition, socio-demographic, life-style and various health parameters were obtained.

Results

Blood pressure was measured in 14 730 children and adolescents (48.6% girls). Table 1 displays the age distribution of the measured children.

Table 1: Age distribution of surveyed children

Age group	N
3-6	3 788
7-10	4 136
11-13	3 073
14-17	3 733
Σ 14 730	

As expected, thresholds of higher-than-optimal blood pressure and hypertensive blood pressure values according to adult criteria were most frequently surpassed in adolescents aged 14–17 years (Table 2): 52.2% of boys and 26.2% of girls had higher-than-optimal BP values (≥ 120 mmHg SBP or ≥ 80 mmHg DBP) and 6.0% of boys and 1.4% of girls had hypertensive blood pressure values (≥ 140 mmHg SBP or ≥ 90 mmHg DBP).

Because the clinical significance of elevated blood pressure increases with the presence of additional cardio-vascular risk factors, the simultaneous presence of smoking, dyslipidemia, and overweight (including obesity) was determined among those aged 14-17 years (Table 3).

At least one of these three additional risk factors was observed in 57% of the boys and in 65% of the girls respectively. At least two additional risk factors were present in 20.5% of the boys and in 25.6% of the girls. Further analyses indicated that

higher-than-optimal blood pressure was observed in high proportion of overweight and obese adolescents (79% of obese adolescent boys and 4% of obese adolescent girls), however, it was also found in almost half of normal-weight boys and almost a quarter of normal-weight girls.

Table 2: Prevalence of optimal/normal and elevated blood pressure values

Blood pressure*	Boys	Girls
Age 3–6 years		
<120/<80	98,9	98,6
120-129/80-84	0,8	1,3
130-139/85-89	0	0,1
$\geq 140/\geq 90$	0,2	0
Age 7–10 years		
<120/<80	96,9	95,5
120-129/80-84	2,5	4,1
130-139/85-89	0,5	0,4
$\geq 140/\geq 90$	0,1	0
Age 11–14 years		
<120/<80	83,7	84,4
120-129/80-84	12,4	12,3
130-139/85-89	3,1	2,7
$\geq 140/\geq 90$	0,8	0,6
Age 14–17 years		
<120/<80	48,8	73,8
120-129/80-84	29,1	20,1
130-139/85-89	16,1	4,6
$\geq 140/\geq 90$	6,0	1,4

* Blood pressure = mean of two consecutive measurements on one occasion

Table 3: Proportion of additional cardiovascular risk factors among adolescents with higher-than-optimal blood pressure

Prevalence (%)	Age 14-17	
	Boys	Girls
Smoking	32.1 (28.8–35.6)	32.7 (28.4–37.3)
Dyslipidaemia	22.3 (19.3–25.7)	36.4 (31.3–41.8)
Overweight	23.6 (21.2–26.3)	25.5 (21.4–30.1)
Risk factors		
0	42.8 (39.5–46.2)	35.3 (30.4–40.5)
1	36.7 (33.5–40.0)	39.1 (34.4–44.1)
2	17.9 (15.5–20.6)	20.4 (16.3–25.3)
3	2.6 (1.7–3.9)	5.2 (3.4–7.7)

Dyslipidemia= total cholesterol >5.0mmol/l or HDL < 1.0 mmol/l in boys; <1.2 mmol/l in girls
 Overweight= BMI \geq 90th percentile for sex and age
 Smoking= current smoking

continued on page 3

WHL News continued

Discussion

This study indicates that more than half of boys and more than a quarter of girls aged 14–17 years in Germany have higher-than-optimal blood pressure by adult criteria when screened on one visit only. Among those were 6% of boys and 1.4% of girls with hypertensive values. In addition, a considerable proportion of adolescents already presented one or two additional cardiovascular risk factors. These results suggest the need for routine blood pressure measurements in children and adolescents as required by clinical guidelines and a sustained focus on healthy lifestyles that can be learned best at a young age.

Further results of this study can be found in [5].

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References:

- [1] Tracy RE, *Atherosclerosis* 1995; **116**:163–179
- [2] Jiang X, et al. *Am J Hypertens* 1994; **7**:794–800
- [3] Hansen ML, et al. *JAMA* 2007; **298**:874–879
- [4] Kurth BM, et al. The challenge of comprehensively mapping children's health in a nation-wide health survey: design of the German KiGGS-Study. *BMC Public Health* 2008; **8**:196
- [5] Neuhauser et al. *Eur J Cardiovasc Prev Rehab* 2009, **16**:195-200

WHL Board Turn Over & Welcome To New Members

Three members of the WHL Board have retired by the end of 2009: Peter Sleight (UK), Joerg Poetzsch (Germany) and Mohsem Ibrahim (Egypt). For their tireless engagement and committed work for WHL and its goals the WHL Executive Board wishes to express its deepest gratitude to all of them.

At the same time the WHL Executive Board is pleased to welcome the following prominent

leaders in hypertension prevention and control as new Board members:

Bruce Neal (Australia), Anita Rieder (Austria) and Xin-Hua Zhang (Hong Kong, SAR China):



Dr. Bruce Neal

Dr. Bruce Neal is a Senior Director at The George Institute for International Health, Associate Professor of Medicine at the University of Sydney and Chair of the Australian Division of World Action on Salt and Health. He directs a major program of research at the Institute and is supported in his work by a Career Development. He is also a member of the Executive Council of the High Blood Pressure Research Council of Australia and the council of the International Society of Cardiovascular Disease Epidemiology and Prevention.



Dr. Anita Rieder

Dr. Anita Rieder is a Professor of Social Medicine, Medical University of Vienna, Austria. She is very much involved in the public health as well as preventive medicine, health promotion and prevention, lifestyle medicine, gender medicine, strategic planning in the field of public health and health reports, health care services, integrated care. She is a member of various organizations and also an author of several health reports and journals.



Dr. Xin-Hua Zhang

Dr. Xin-Hua Zhang is an Associate Professor in the Department of Community and Family Medicine and Division of Epidemiology, School of Public Health, Faculty of Medicine, Chinese University of Hong Kong. She is very active in medical communities.

She is member of a number of medical associations and also serves on the editorial boards for various journals. She has been a dedicated investigator and has been involved in a number of national and international research programs.

Drs. Neal, Rieder, Zhang have been invited to serve von the WHL Board for a 2 year term effective of October 1, 2009.

People

Dr. Fernando Nobre has been elected President of the **Brazilian Society of Hypertension**. Dr. Carlos Eduardo Negrão is Vice President and Dr. Frida Liane Plavnik is General Secretary. The address of the Society remains the same: Avenida Paulista, 2073, Suite 505-508, São Paulo – SP 01311-300, Brazil.

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Website: <http://www.sbh.org.br>

Electronic Newsletter Delivery



<http://www.worldhypertensionleague.org>

Impressum

The objectives of the WHL are to promote the detection, control and prevention of arterial hypertension in populations. The World Hypertension League (WHL) is a federation of leagues, societies and other national bodies devoted to this goal. Individual membership is not possible. The WHL is a division of the International Society of Hypertension (ISH), and is in official relations with the World Health Organization (WHO).

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Dr. Arun Chockalingam (Vancouver, Canada), Secretary General

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Dr. Graham MacGregor (London, UK)
Dr. Bruce Neal (Sydney, Australia)
Dr. Anita Rieder (Vienna, Austria)
Dr. Xin-Hua Zhang (Hong Kong, SAR China)

ISH Representation:

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Dr. Lars Lindholm (Umeå, Sweden)

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Calendar

ISH – LMICC 4th Teaching Seminar on Hypertension in Africa

May 5-6, 2010
Kinshasa, DR of Congo
Information: Prof. R. Fagard,
E-mail: robert.fagard@uz.kuleuven.ac.be
Prof. JR M'Buyamba-Kabangu
E-mail: jerembu@yahoo.fr

4th Conference of Hypertension of the International Forum for Hypertension Control and Prevention in Africa

May 7-8, 2010
Kinshasa, DR of Congo
Information: Prof. Basden Onwubere
University of Nigeria Teaching Hospital
Cardiology Unit, Enugu 40001, Nigeria
E-mail: sg@ifha-online.com
Website: <http://www.ifha-online.com>

5th International Symposium on Hypertension & 3rd Vascular Risk Workshop

May 25-28, 2010
Santa Clara, Cuba
Information: Dr. C. Emilio F. González
Rodríguez, Universidad Central Marta Abreu de
Las Villas (UCLV)
Santa Clara, Villa Clara, Cuba
E-mail: hta2010@uclv.edu.cu
Website: <http://hta2010.uclv.edu.cu/>

23rd Scientific Meeting of the International Society of Hypertension

September 26-30, 2010
Vancouver, Canada
Information: Sea to Sky Meeting Management
Suite 206, 201 Bewicke Avenue
North Vancouver, BC, Canada V7M 3M7
Fax: (+1-604) 984-6434
Website: <http://vancouverhypertension2010.com>

2nd World Health Summit “Universal Access Now”

October 10-13, 2010
Berlin, Germany
Information: Simone Leiske, K.I.T. Group
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10709 Berlin, Germany
Phone: (+49-30) 246 03 240
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Website: <http://www.worldhealthsummit.org>