PREVALENCE OF HYPERTENSION IN PREPARATORY SCHOOL STUDENTS IN GHARBIA GOVERNORATE, ACCORDING TO THE GUIDELINES OF THE AMERICAN ACADEMY OF PEDIATRICS, 2017

By

Ahmed Hamdy Abd El-Aziz Younis*, Zeinab Abd EL-Aziz El-Ramly*, Ibrahim Mohamed Abu-Farag*

Pediatrics Department*, Al-Azhar Faculty of Medicine

ABSTRACT

Background: *The prevalence of hypertension in pediatrics has increased. This increase resulted from different classification changes in younger and older children. The prevalence of elevated blood pressure, stage I and stage II hypertension was estimated by the new American Academy of Pediatrics guideline in school-based blood pressure screening program.*

Aim: *The aim of this study was to determine the prevalence of hypertension in preparatory school students.*

Patients and Methods: *This study was cross sectional study. It is a school based survey which was conducted in Tanta city preparatory school from October 2019 to May 2021. The survey was included 4000 of school students (aged 12-16years, of both sex). The study was conducted on preparatory school children in Tanta west educational administration in Gharbia Governorate. The percentile charts based on height was used for classification of blood pressure.*

Results: *High prevalence of hypertension distribution among studied group as follow, the percentage of cases with elevated Bl.p (Bl.p ≥ 90th to < 95th percentile) was (14.4%), cases with HTN stage I (Bl.p ≥ 95th percentile to < 95th percentile plus 12 mm Hg) was (0.4%) and normal cases (Bl.p < 90th percentile) was (85.2%). There was statistically significant difference between males and females children regarding to hypertension as it was higher among males. Also there were other risk factors as mean BMI, weight and WC that were higher among hypertensive cases than normal cases. There was statistically positive correlation between age of children and hypertension also, positive family history of HTN and increase BMI of studied children were a significant risk factor for pediatric hypertension.*

Conclusion: *High prevalence of hypertension in studied preparatory school students in Gharbia according to the American Academy of Pediatrics, 2017. Prevalence of*

pediatric hypertension was higher among children aged ≥13 years. Obesity and positive family history of hypertension are risk factors for pediatric hypertension.

INTRODUCTION

The incidence of hypertension in children is increasing. **(Sabri et al., 2019)** Globally, the prevalence of hypertension in pediatrics has increased from a previously reported range of 1%–2% to 4%–5%. **(Samuels, 2012)** The etiology of hypertension (primary) in pediatrics is multifactorial, with interplay between nature and nurture. Genetics is important in onset of primary hypertension as studies have demonstrated a strong positive family history among siblings with primary hypertension. **(Okoh and Alikor, 2013)** Furthermore, linked to the onset of childhood hypertension is obesity with increasing prevalence of childhood obesity partly responsible for this rising prevalence of childhood hypertension. Other risk factors documented to be associated with primary hypertension in children included low socioeconomic status, and low birth weight of firstborns **(Brady, 2012)**.

AIMS OF THE WORK

The aim of this work was to determine the prevalence of hypertension in preparatory school students in Tanta city (Gharbia Governorate) and the stages of hypertension were assessed following the Americana Academy of Pediatrics guideline 2017.

Inclusion Criteria:

- Apparently healthy preparatory school children (12 – 16) years old of both sex.

Exclusion Criteria:

- Any child > 16 or < 12 year old, or history of any drug intake known to influence blood pressure e.g. steroids, pseudoephedrine, phenylpropanolamine, caffeine, and non-steroidal anti-inflammatory drugs.

Ethical Consideration:

- Informed verbal consent was obtained from all the students of the study.

- Approval by the Ethics committee of faculty of medicine, Al-Azhar University.

- Official permission was obtained from Tanta west educational administration.

- The authors received no financial support for the study or the publication.

- The authors declared that there is no conflict of interest regarding the study and publication.

- The results of study are confidential.

PATIENTS AND METHODS

This study was cross sectional study. It is a school based survey which conducted in Tanta city preparatory school.

I- Patients:

Official permission was obtained before conducting the study then communication was done with Tanta west educational administration which involves:

- Schools of boys
  - Tanta El-Ahmadia.
  - Tanta preparatory school.
  - Khaled Ibn El-Waleed.
- Schools of girls
  - Soaad Ezat preparatory school.
  - El-Akbbat preparatory school.
  - El-Sayada Aasha school.
  - Nabil El-Wakad school.

II- Methodology:

Type of the study:

Cross-sectional analytic study.

Site of the study:

The study was conducted on preparatory school children in Tanta west educational administration in Gharbia Governorate.

Time of the study:

The study was conducted from October 2019 to May 2021.

Sample size:

4000 apparently healthy preparatory school children (12–16) years old.

The sample size was calculated by using the following formula:

$N= (Z/ A)^2 \times P (100 - P)$

Z: a percentile of slandered normal distribution determined by 95%

Confidence level = 1.96

A: the width of confidence interval = 12

P: the prevalence of the disease = 19%

$N= (1.96/ 12)^2 \times 19 (100 - 19)= 45$ students in each group

Tools: All students included in this study were subjected to the following:

1. History:

- A questionnaire sheet was developed to collect the necessary data including

age, sex, family history of hypertension and family history of DM.

2. Anthropometric measures:

- Weight.
- Height.
- Body mass index (BMI).
- Waist circumference (WC).

3. Vital sign:

- Heart rate.

- Blood pressure (B.P) recording:

- By automated sphygmomanometer with appropriate cuff size.

- The percentile charts based on height was used for classification of blood pressure. **(Flynn et al., 2017)**.

Table for blood pressure classifications according to the American Academy of Pediatrics:

BP Classification	Children Aged 1–12 y (Percentile)	Everyone ≥13 y Old (mm Hg)
Normotensive	<90th and <120/80	<120/<80
Elevated blood pressure	≥90th or ≥120/80 mm Hg (lower) to <95th	120–129/<80
Stage 1 hypertension	≥95th to <95th + 12 mm Hg or 130/80–139/89 (lower)	130–139/80–89
Stage 2 hypertension	≥95th + 12 mm Hg or ≥140/90 (lower)	≥140/90

(Flynn et al., 2017)

Weight was measured (to the nearest 0.5 kg) with the subject standing motionless on the weighing scale with feet 15 cm apart, and weight equally distributed on each leg. Height was measured (to the nearest 0.5 cm) with the subject standing in an erect position against a vertical scale of portable stadiometer and with the head positioned so that the top of the external auditory meatus was on a level with the inferior margin of the bony orbit. Body mass index (BMI), the body

weight in kilograms divided by the square of height in meters, was used as the measure of obesity in this study (**Wong et el., 2005**).

Blood pressure (BP) measurements were taken using an automated oscillometric device. The measurements were taken in a quiet room in the sitting posture with the arm resting on the table. Using the appropriate cuff-size for age, the cuff-bladder completely encircling the arm and covering 75% of the arm between the acromion and olecranon. The sensor was placed over the brachial pulse at the proximal medial part of the anti-cubital fossa. Efforts were made to eliminate the factors, which may affect the blood pressure, e.g., anxiety, crying, exercise, etc. (**Forouzanfar et el., 2015**) Three measures of BP should be obtained both within each visit and repeated over three visits with two weeks in-between because BP often can vary both within visits and across visits (**Samuels and Bell, 2018**).

III- Statistical analysis:

The collected data were tabulated and analyzed using SPSS version 24 software (Spss Inc, Chicago, ILL Company). Categorical data were presented as number and percentages. Chi square test (X^2), was used to analyze categorical variables. Quantitative data were expressed as mean ± standard deviation, median and range. Student "t" test was used to analyze normally distributed variables among 2 independent groups, ANOVA (F test) For normally quantitative variables, to compare between more than two groups, and Post Hoc test (LSD) for pairwise comparisons The accepted level of significance in this work was stated at 0.05 (P <0.05 was considered significant).

RESULTS

Table (1): Demographic data of the studied groups

		N	%
Sex	**Male**	1488	37.20
	Female	2512	62.80
Age (in years)	**<13 Years**	2160	54.00
	>13 Years	1840	46.00
	Range	12-16	
	Mean ±SD	13.552±1.339	
Family History of HTN	**Positive**	1136	28.4
	Negative	2864	71.6
BMI	**Obese**	224	5.6
	Non-Obese	3776	94.4

This table shows that the mean of age was (13.55± 1.33), and according to sex; the percentage of females was (62.8 %) and males was (37.2%). The percentage of positive family history of hypertension in all cases was (28.4%) and according to BMI; the percentage of obese cases was (5.6%).

Table (2): Blood pressure measurements of the studied groups

1st Systolic reading (mmHg)	**Range**	103-137
	Mean ±SD	115.528±4.684
1st Diastolic reading (mmHg)	**Range**	68-85
	Mean ±SD	73.692±2.474
2nd Systolic reading (mmHg)	**Range**	102-135
	Mean ±SD	115.924±5.630
2nd Diastolic reading (mmHg)	**Range**	70-87
	Mean ±SD	73.648±2.615
3rd Systolic reading (mmHg)	**Range**	105-139
	Mean ±SD	116.684±5.115
3rd Diastolic reading (mmHg)	**Range**	69-89
	Mean ±SD	73.792±2.814

This table shows systolic and diastolic blood pressure measurements at first visit, after two weeks and after four weeks.

Table (3): **Stages of the studied groups according to systolic and diastolic Bl.p**

Stage		
	N	**%**
Total	4000	100.00
Elevated (≥ 90th to < 95th percentile)	576	14.40
Stage I (≥ 95th percentile to < 95th percentile plus 12 mm Hg)	16	0.40
Normal (<90th percentile)	3408	85.20

This table shows that the percentage of cases with elevated Bl.p was (14.4%), cases with HTN stage I was (0.4%) and normal cases was (85.2%).

Table (4): **Correlation between mean blood pressure stages and sex**

Sex	Stage						Chi-Square	
	Normal		**Elevated**		**Stage I**			
	N	**%**	**N**	**%**	**N**	**%**	**X^2**	**P-value**
Total	3408	100.00	576	100.00	16	100.00		
Female	2288	67.14	224	38.89	0	0.00	195.407	<0.001*
Male	1120	32.86	352	61.11	16	100.00		
P-value	<0.001*		<0.001*		<0.001*			

This table shows that there was statistically significant increase in mean blood pressure recordings in male than female.

Table (5): **Correlation between FH of HTN and mean blood pressure recordings of the studied groups**

FH of HTN	Stage						Chi-Square	
	Normal		**Elevated**		**Stage I**			
	N	**%**	**N**	**%**	**N**	**%**	**X^2**	**P-value**
Total	3408	100.00	576	100.00	16	100.00		
Positive	752	22.07	384	66.67	0	0.00	488.386	<0.001*
Negative	2656	77.93	192	33.33	16	100.00		
P-value	<0.001*		<0.001*		<0.001*			

This table shows that there was statistically significant correlation between FH of HTN and means blood pressure recordings of the studied groups.

Table (6): Correlation between BMI and mean blood pressure of the studied groups

BMI group	Stage						Chi-Square	
	Normal		Elevated		Stage I			
	N	%	N	%	N	%	X^2	P-value
Total	3408	100.00	576	100.00	16	100.00	41.219	<0.001*
Obese	224	6.57	0	0.00	0	0.00		
Non-Obese	3184	93.43	576	100.00	16	100.00		
P-value	<0.001*		<0.001*		<0.001*			

This table shows that there was statistically significant positive correlation between BMI and mean blood pressure of the studied groups.

Table (7): Anthropometric variations in mean blood pressure recordings

		Stage									ANOVA	
		Normal			Elevated			Stage I			F	P-value
Height (in cm)	Range	150	-	189	150	-	180	179	-	179	240.070	<0.001*
	Mean ±SD	158.305	±	6.205	163.667	±	8.274	179.000	±	0.000		
Weight (in kg)	Range	33.9	-	99.5	48.3	-	87.1	77.2	-	77.2	113.368	<0.001*
	Mean ±SD	57.373	±	11.889	64.481	±	9.907	77.200	±	0.000		
BMI	Range	14.5	-	34.4	18.9	-	27.4	24.1	-	24.1	28.294	<0.001*
	Mean ±SD	22.777	±	3.737	23.950	±	1.749	24.100	±	0.000		
Waist Cir. (in cm)	Range	55	-	125	79	-	95	90	-	90	27.887	<0.001*
	Mean ±SD	83.437	±	12.517	87.222	±	4.853	90.000	±	0.000		

This table shows that there was statistically significant difference between height and weight and means blood pressure recordings. Mean BMI and WC were higher among hypertensive cases than normal cases.

DISCUSSION

This study showed that, regarding prevalence of hypertension distribution among studied group, the percentage of cases with elevated Bl.p was (14.4%), cases with HTN stage I was (0.4%) and normal cases were (85.2%).

In other studies, the prevalence was 9.5% as reported in Ilorin, **(Obika et al., 1995)** and 9.8% in private primary school entrants in Jos, Northcentral Nigeria. **(Akor et al., 2010)** A possible explanation for the high prevalence reported in the earlier work from Ilorin could be the timing of BP measurement, which was done in the evening with the possible effects of the stresses during the day activities.

Our study agrees with **(Abolfotouh et al., 2011)** who aimed to investigate the relationship between high blood pressure (HBP) and obesity in Egyptian children. A cross-sectional study of 1500 children in Alexandria, Egypt. They found that the prevalence rates of prehypertension and hypertension were 5.7% and 4.0%, respectively.

This contradicts also with **(Kapil et al., 2013)** study on the primary school pupils; they found that the prevalence of hypertension was (4%).

The prevalence of elevated blood pressure among children is showing a declining trend in some countries like United States, **(Xi et al., 2016)**, Seychelles **(Chiolero et al., 2007)** and Japan **(Shirasawa et al., 2012)**.

This study showed that, there was statistically significant difference between males and females children regarding to hypertension.as it was higher among males.

This agrees with **(Riley and Bluhm, 2012)** who found male gender is however a well-known risk factor for elevated blood pressure in children.

This contradicts to other findings from Nigeria, **(Also et al., 2016)** and Turkey **(Discigil et al.,**

2007). They found that, the systolic and diastolic hypertension was significantly higher in females than males.

Our study showed that, mean BMI, weight and WC were higher among hypertension cases than normal cases.

This finding was in agreement with **(Arun and Kavinilavu, 2018)**. The association between excess weight and hypertension could be attributable to over activation of the renin-angiotensin and sympathetic nervous systems; insulin resistance; and abnormality in vascular structure and function observed in obese pediatrics **(Sorof and Daniels, 2018)**.

This agrees also with **(Adiele and Morgan, 2017)** who found hypertension significantly correlate with increased body mass index.

In a school-based survey of a representative sample of children in Canada, they found that body mass index was positively correlated with SBP and DBP in all age-gender groups **(Paradis et al., 2004)**.

This study showed that, there was statistically significant positive correlation between age of children and hypertension.

This agrees with **(Umar et al., 2016)** who reported higher

prevalence of elevated blood pressure in older children. Age-related increase in blood pressure is partly attributable to increasing weight with age.

Our study showed that, family history of HTN was significantly associated with HTN in offspring.

This agrees with (**Ranasinghe et al., 2015**) who found family history is an important non-modifiable risk factor for hypertension. The study demonstrating associations of blood pressure among siblings and between parents and children. Among various mechanisms proposed to explain the relation between hypertension and positive family history of hypertension, are the increased renal proximal sodium reabsorption, genetic traits related to high blood pressure such as high sodium-lithium counter-transport, elevated uric acid level, high fasting plasma insulin concentrations, high-density LDL sub-fractions, fat pattern index, oxidative stress and body mass index, as well as shared environmental factors such as sodium intake and heavy metal exposure.

Also, (**Flynn, 2013**) revealed characteristics of pediatric patients with primary hypertension include not only obesity, but also family history of hypertension.

This disagrees with (**Ibrahim et al., 2019**) who revealed that with regard to the associated risk factors for hypertension, there was no significant association with, family history of hypertension (P = 0.793).

CONCLUSION

There was high prevalence of hypertension in the studied preparatory school students as follows, the percentage of cases with elevated Bl.p (Bl.p $\geq$ 90th to < 95th percentile) was (14.4%), cases with HTN stage I (Bl.p $\geq$ 95th percentile to < 95th percentile plus 12 mm Hg) was (0.4%) and normal cases (Bl.p < 90th percentile) was (85.2%). Prevalence of pediatric hypertension was higher among children aged $\geq$13 years. Association of obesity with elevated BP. Family history for HTN is a non-modifiable risk factor for pediatric hypertension.

REFERENCES

1. **Abolfotouh, M. A., Sallam, S. A., Mohammed, M. S., Loutfy, A. A., & Hasab, A. A. (2011):** Prevalence of elevated blood pressure and association with obesity in egyptian school adolescents. International journal of hypertension, 2011: 95:25-37.

2. **Adiele, D., & Morgan, G. P. D. (2017):** Elevated Blood Pressure Among Zimbabwean Urban Primary

School Children Aged 5–11 Years. Pediatric and Adolescent Medicine, 2017, 2(3), 37-43.

3. **Akor F, Okolo SN, Okolo AA. (2010):** Blood pressure and anthropometric measurements in healthy primary school entrants in Jos, Nigeria. South Afr J Child Health 2010; 4:42-5.

4. **Also U, Asani M, Ibrahim M. (2016):** Prevalence of elevated blood pressure among primary school children in Kano Metropolis, Nigeria. Niger J Cardiol 2016; 13:57-61.

5. **Arun DJ, Kavinilavu R. (2018):** A study of risk factors associated with hypertension among the school going children in Puducherry. Int J Community Med Public Health 2018; 5:764-8.

6. **Brady TM. (2012):** Hypertension. Pediatr Rev 2012; 33:541-52.

7. **Chiolero A, Madeleine G, Gabriel A, Burnier M, Paccaud F, Bovet P. (2007):** Prevalence of elevated blood pressure and association with overweight in children of a rapidly developing country. J Hum Hypertens. 2007; 21(2):120–7.

8. **Discigil G, Aydogdu A, Basak O, Gemalmaz A, Gurel SF. (2007):** Prevalence and predictors of hypertension in primary school students: A population based study in Aydin, Turkey. Turk J Fam Med Prim Care 2007; 1:17-22.

9. **Flynn J. (2013):** The changing face of pediatric hypertension in the era of the childhood obesity epidemic. Pediatr Nephrol 2013; 28(7):1059–66.

10. **Flynn JT, Kaelber DC, Baker-Smith CM. (2017):** Subcommittee on Screening and Management of High Blood Pressure in Children. Clinical practice guideline for screening and management of high blood pressure in children and adolescents. 2017:140:190-4.

11. **Forouzanfar M, Dajani HR, Groza VZ, Bolic M, Rajan S, Batkin I. (2015):** Oscillometric blood pressure estimation: past, present, and future. IEEE Rev Biomed Eng. 2015; 8:44–63.

12. **Ibrahim OR, Afolabi JK, Adedoyin OT, Ojuawo AI. (2019):** Prevalence and risk factors for hypertension among school children in Ilorin, Northcentral Nigeria. J Fam Community Med 2019;26:181-6.

13. **Kapil U, Bhadoria AS, Sareen N, Kaur S. (2013):** Association of body mass index and waist circumference with hypertension among school children in the age group of 5-16 years belonging to lower income group and middle income group in national capital territory of Delhi. Indian J Endocrinol Metab 2013; 17:S345-8.

14. **Obika LF, Adedoyin MA, Olowoyeye JO. (1995):** Pattern of paediatric blood pressure in rural, semi-urban and urban communities in Ilorin, Nigeria. Afr J Med Med Sci 1995; 24:371-7.

15. **Okoh BA, Alikor EA. (2013):** Childhood hypertension and family history of hypertension in primary school children in Port Harcourt. Niger J Paediatr 2013; 40: 184-8.

16. **Paradis G, Lambert M, O'Loughlin J, et al. (2004):** Blood pressure and adiposity in children

and adolescents. Circulation. 2004; 110(13):1832–1838.

17. **Ranasinghe, P., Cooray, D. N., Jayawardena, R., & Katulanda, P. (2015):** The influence of family history of hypertension on disease prevalence and associated metabolic risk factors among Sri Lankan adults. BMC public health, 2015, 15, 576.

18. **Riley M, Bluhm B. (2012):** High blood pressure in children and adolescents. Am Fam Physician. 2012; 85(7):693–700.

19. **Sabri, M., Gheissari, A., Mansourian, M., Mohammadifard, N., & Sarrafzadegan, N. (2019):** Essential hypertension in children, a growing worldwide problem. Journal of research in medical sciences: the official journal of Isfahan University of Medical Sciences, 2019, 24, 109.

20. **Samuels J. (2012):** The increasing burden of pediatric hypertension. Hypertension 2012; 60:276-7.

21. **Shirasawa T, Ochiai H, Nishimura R, Morimoto A, Shimada A, Ohtsu T, et al. (2012):** Secular trends in blood pressure among Japanese schoolchildren: a population-based annual survey from 1994 to 2010. J Epidemiol. 2012; 22(5):248–53.

22. **Umar A, Mustafa A, Muuta I. (2016):** Prevalence of elevated blood pressure among primary school children in Kano metropolis, Nigeria. Nig J Cardiol. 2016; 13(1):57–61.

23. **Wong JP, Ho SY, Lai MK, Leung GM, Stewart SM, Lam TH. (2005):** Overweight, obesity, weight-related concerns and behaviours in Hong Kong Chinese Children and adolescents. Acta Paediatr. 2005; 94:595–601.

24. **Xi B, Zhang T, Zhang M, Liu F, Zong X, Zhao M, et al. (2016):** Trends in elevated blood pressure among US children and adolescents: Am J Hypertens. 2016; 29(2):217–25.

معدل انتشار ارتفاع ضغط الدم في طلبة المرحلة الاعدادية بمحافظة الغربية، طبقاً لتوصيات الجمعية الأمريكية لطب الأطفال، 2017

أحمد حمدي عبد العزيز*، زينب عبد العزيز الرملي*، ابراهيم محمد أبو فرج

قسم طب الأطفال*، كلية الطب جامعة الأزهر

يتراوح معدل انتشار ارتفاع ضغط الدم المؤكد عند الأطفال بين 2٪ إلى 4٪ بناءًا على الإرشادات السابقة. تم تقدير انتشار ارتفاع ضغط الدم، والمرحلة 1، والمرحلة 2 من ارتفاع ضغط الدم من قبل الأكاديمية الأمريكية الجديدة لطب الأطفال في برنامج فحص ضغط الدم في المدرسة. في عام 2017، أصدرت الأكاديمية الأمريكية لطب الأطفال دليل الممارسة السريرية لفحص وعلاج ارتفاع ضغط الدم لدى الأطفال والمراهقين لتحديث معايير تشخيص ارتفاع ضغط الدم لدى الأطفال.

الهدف من هذا العمل هو تحديد مدى انتشار ارتفاع ضغط الدم لدى طلاب المرحلة الإعدادية بإدارة غرب طنطا التعليمية (محافظة الغربية) وتم تقييم مراحل ارتفاع ضغط الدم باتباع توجيهات الأكاديمية الأمريكية لطب الأطفال 2017.

هذه الدراسة دراسة تحليلية مقطعية، تم إتمامها في الفترة من شهر أكتوبر 2019 حتى شهر مايو 2021، مسح مدرسي تم إجراؤه في مدارس إدارة طنطا غرب التعليمية

الإعدادية. شمل الاستطلاع 4000 مـن طـلاب المـدارس (تتراوح أعمارهم بين 12-16 سنة، من كلا الجنسين).

حيث تـم الحصـول علـى إذن رسـمي قبـل إجـراء الدراسـة مـن الإدارة التعليميـة بطنطـا غـرب، كمـا تـم الحصـول علـى موافقـة لجنـة الأخلاقيـات بكليـة الطـب جامعـة الأزهـر. تـم الحصـول علـى الموافقة الشفوية المستنيرة من جميع طلاب الدراسة.

خضـع جميـع الطـلاب المشـمولين فـي هـذه الدراسـة إلـى أخـذ التـاريخ المرضـي، قيـاس الـوزن والطـول ومؤشـر كتلـة الجسـم، تسـجيل معـدل خفقـان القلـب و قيـاس ضـغط الـدم علـى مدار ثلاث زيارات.

يمكـن تلخـيص نتـائج دراسـتنا الحاليـة علـى النحـو التـالي، كانـت نسـبة حـالات ارتفـاع ضـغط الـدم (14.4٪) وحـالات ارتفـاع ضـغط الـدم المرحلـة الأولـى (0.4٪) والحـالات الطبيعيـة (85.2٪).

حيـث كـان يوجـد فـروق ذات دلالـة إحصـائية بـين الـذكور والإنـاث فيمـا يتعلـق بارتفـاع ضـغط الـدم، كانـت أعلـى بـين الـذكور. وأيضـا كـان يوجـد فـروق ذات دلالـة إحصـائية بـين عمـر الأطفال وارتفاع ضغط الدم.

أظهـرت هـذه الدراسـة أنـه وفقًـا لمؤشـر كتلـة الجسـم الـذي تـم توزيعـه، هنـاك 5.6٪ أطفـال يعـانون مـن السـمنة المفرطـة فـي دراسـتنا. كمـا أن متوسـط مؤشـر كتلـة الجسـم والـوزن ومحـيط الخصـر كـانوا أعلـى بـين حـالات ارتفـاع ضـغط الـدم مقارنـة بالحـالات

العاديـــة. وأخيـــرا، أظهـــرت دراســتنا أن التــاريخ العــائلي للإصــابة بارتفــاع ضغط الدم كان مرتبطًا بشكل كبير بارتفاع ضغط الدم.

الاستنتاجات النهائية:

- هنــاك معــدل انتشــار عــالي بــين طــلاب المــدارس الإعداديــة (ارتفــاع ضغط الدم 14.4 % والمرحلة الأولى من مرض الضغط 0.4%).

- ارتفــاع معــدل انتشــار الســمنة 5.6% بــين الأطفــال فــي ســن الدراســة (12- 16 ســنة)، وأيضــا ارتفــاع نســب متوســط مؤشــر كتلــة الجســم ومحــيط الخصــر بــين الحــالات المصــابة بارتفــاع ضــغط الــدم أكثــر مــن الحالات الطبيعية.

- معــدل انتشــار مــرض ضــغط الــدم بالأطفــال أعلــى بــين الأطفــال فــوق سن 13 سنة.

- يعتبــر التــاريخ العــائلي المرضــي لوجــود مــرض ارتفــاع ضغط الــدم عامــل غيــر قابــل للتعــديل لحــدوث مــرض ارتفــاع ضغط الــدم فــي الأطفال.

التوصيات:

- يجـب فحـص الأطفـال الأكثـر عرضـة للإصـابة بمـرض ارتفاع ضغط الـدم مثـل الأطفـال الأكبـر عمـرا، الأكثـر سـمنة ومـن لديـه تـاريخ عـائلي لوجود مرض ارتفاع ضغط الدم.

- الإحالــة المبكــرة للأطفــال الأكثــر عرضــة لخطــر الإصــابة بمــرض ارتفــاع ضــغط الــدم إلــى عيــادات التــأمين الصــحي لعمــل فحوصــات أشمل.

- عمل دراسات أشمل على نطاق أكبر ومناطق أخرى.