Comparison of blood pressure measurement by three methods Oscillotonometry, Auscultation and arterial in children aged between 6months-12 years

Afshin Rezaeifar ,MD: Resident of Pediatrician, Pediatric health research center ,Tabriz university of medical science

Shamsi Gaffari,MD : Assistant Professor of Pediatric Cardiology, Pediatric health research center ,Tabriz university of medical science

Abstract:

Introduction: Blood pressure measurement is essential for epidemiological studies and clinical decision .We try to find out blood pressure measurments derived in three ways ausculatory , oscillometric and arterial as golden standard are the same and to find the effect on peripheral edema on blood pressure measured by oscillometric or auscultation and compared it with arterial method .

Method and materials: In a cross-sectional study systolic,diastolic,mean blood pressure of 55 children between 6months-12 years candidated for open heart surgery were measured with three methods : Arterial ,oscillometric and auscultatory .Peripheral edema divided to higher than +2 as marked and edema equal or lower than +2 as no edema . Data expressed by Mean±SD . comparison in each group performed by analysis of variance performed in SPSS 16.

Results: 55 children age of 29.4±3.9 months ,(56.4% female , 43.6% male) , they divided to two groups 10 children with peripheral edema beyond 2+ and 45 cases without edema.There was correlationship between mean BP in arterial and ausculatory ways,also between arterial and oscillometric ways , also between ausculatory and oscillometric ways($p < 0.001$). Average systolic BP measured with oscillometric in edematous group is 1.4 mmHg greater than arterial ($p=0.02$). Average

diastolic BP measured with arterial in edematous group is 8.3 mmHg greater than oscillometric (p=0.03). Average systolic BP measured with ausculatory in edematous group is 4.7 mmHg greater than arterial (p=0.6). Average diastolic BP measured with arterial in edematous group is 1.4 mmHg greater than ausculatory (p=0.37). Thus, there is correlationship between systolic and diastolic BP measurements in arterial and oscillometric ways in edematous patients there is no correlationship between arterial and ausculatory in edematous ones.

Conclusion : There is correlationship among ausculatory , oscillometric and arterial methods. In fact there is no difference in using these ways.It is bettere in edematous patients using arterial and Oscillometric methods. Key words : Oscillometric, edema , Auscultatory, blood pressure ,arterial.