A Comparison Between Office Blood Pressure Measurements and Ambulatory Blood Pressure Measurements in the Healthy Middle-Aged General Population

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Introduction

• 1/3 of all deaths worldwide are due to CVD
• Hypertension is the most important risk factor for developing CVD, and 1.13 billion people worldwide are affected by hypertension
• Ambulatory blood pressure measurements (ABPM) are frequently lower compared to office blood pressure measurements (OBPM)
• ABPM is a better predictor of hypertension-mediated organ damage, cardiovascular morbidity and mortality
• The aim of the study were to investigate the relationship between OBPM and ABPM, and to quantify the difference between the two methods.
Methods

• This study included 1608 participants aged 50-62 years, from the Renal Iohexol Clerance Survey in Tromsø 6 (RENIS-T6)
• Trained study nurses conducted the OBPM according to guidelines from the ESC/ESH
• ABPM was measured during 24 h
• OBPM and ABPM was compared using the Bland-Altman plot, Deming regression and paired sample t-test. The Pearson correlation coefficient was also calculated.
Results

• ODBPM was significantly higher than ADBPM (P<0.001)
• In Bland-Altman plot, OSBPM was on average 0.53 mmHg lower than ASBPM, and ODBPM was on average 1.33 mmHg higher than ADBPM
• In Deming regression, for each unit increase in ASBPM, OSBPM increased with 0.68 mmHg (P<0.01) and for each unit increase in ADBPM, ODBPM increased with 0.85 mmHg (P<0.01)
• The Pearson R correlation between
  • OSBPM and ASBPM was 0.73 (P<0.01)
  • ODBPM and ADBPM was 0.72 (P<0.01)
Conclusion

• We found significantly higher observed ODBPM compared to ADBPM. However, the difference was small and probably not clinically significant for the individual patient.

• The blood pressure measurements conducted by trained study nurses are not directly comparable to measurements in the doctor’s office.