

Letters to the editor

Influence of duration of Type 1 (insulin-dependent) diabetes mellitus on 24-h ambulatory blood pressure and heart rate profile

Dear Sir,

The clinical value of ambulatory blood pressure monitoring has not yet been clearly established [1]. In their recent article K. W. Hansen et al. [2] report that normal circadian variation of blood pressure was moderately disturbed in a group of microalbuminuric patients with Type 1 (insulin-dependent) diabetes mellitus. Our present study seems to indicate that duration of diabetes could have a significant influence on 24-h blood pressure profile, even in young normoalbuminuric patients.

We have examined the 24-h ambulatory blood pressure profile in 28 normotensive, well-controlled normoalbuminuric [3] diabetic patients (mean \pm SD age 29.5 ± 5.8 years) divided into two groups. Group A – 14 males with a duration of diabetes less than 5 years (mean 2.4 ± 1.9 years) and group B – 14 males with a duration of diabetes more than 10 years (mean 12.0 ± 5.1 years). Non-invasive 24-h ambulatory blood pressure (ABP) and heart rate (HR) monitoring was performed with Spacelabs 5300 device [4]. Twenty-four hour, day and night systolic ABP were not significantly different between the two groups. The 2-h systolic ABP means between 20.00 hours and 02.00 hours were, however, significantly higher in group B (Fig. 1). Group B had significantly higher 24-h diastolic ABP (80 ± 10 mmHg vs 71 ± 7 mmHg, $p < 0.01$) as well as both the day (83 ± 9 vs 74 ± 8 mmHg, $p < 0.05$) and night (73 ± 10 vs 62 ± 8 mmHg, $p < 0.005$) diastolic ABP. Similarly, HR was significantly elevated in group B during the whole-day period (85 ± 12 vs 74 ± 9 min $^{-1}$, $p < 0.01$) as well as during the day (90 ± 12 vs 80 ± 10 min $^{-1}$, $p < 0.01$) and night (74 ± 13 vs 62 ± 11 min $^{-1}$, $p < 0.05$) in com-

parison to group A. The 2-h means of systolic and diastolic ABP shown in Figure 1 suggest the whole 24-h diastolic ABP profile is shifted upwards in young normoalbuminuric males with longer duration of diabetes, while systolic ABP profile is disturbed only during late evening and night-time in this group in comparison to short-term diabetic patients. Unfortunately, there is no general agreement concerning the normal limits of ABP on which clinicians should base their decisions [1]. Recently published studies on ABP in diabetic patients [5–7] raise a question about reference ABP value, which might define elevated blood pressure and indicate the need for therapeutic intervention in young normoalbuminuric diabetics, such as our patients from group B. We agree with Hansen et al. [2] that not only the mean 24-h blood pressure is important, but the normalization of the circadian blood pressure and heart rate profile should be one of the aims of the antihypertensive treatment in diabetes. Our results provide further evidence for the importance of the non-invasive ABP monitoring in the early detection of the blood pressure and heart rate disturbances in diabetic patients.

Yours sincerely,

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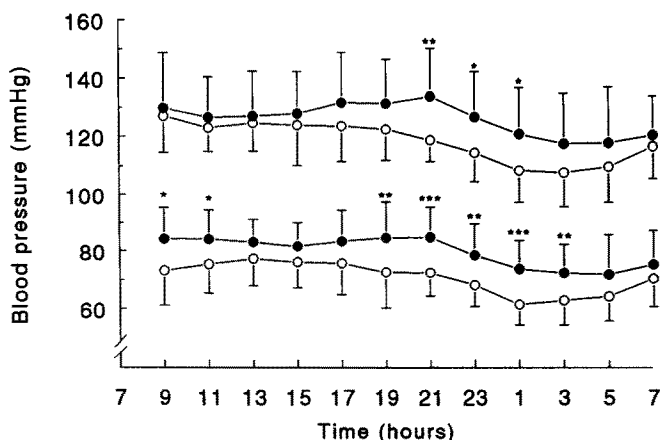


Fig. 1 Twenty-four hour profile of mean systolic and diastolic blood pressure for normoalbuminuric Type 1 diabetic patients with a duration of diabetes less than 5 years (group A, $n = 14$, ○) or more than 10 years (group B, $n = 14$, ●). Vertical bars represent standard deviations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ vs group A (Student's t -test)

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