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CORRESPONDENCE

Response to Metoki

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We thank Dr Metoki for his thoughtful comments.[1] He raises the important points that mid-pregnancy fall may have an impact on the occurrence of pregnancy-induced hypertension (PIH) and that seasonal variations in blood pressure (BP) may affect the BP changes during pregnancy and contribute to the occurrence of PIH. We assessed clinic BP values at week 30 and at a time after week 34 in healthy pregnant women who participated in the previous study.[2] As shown in Figure 1, a decreasing BP in the second trimester was observed. Because pregnant women with low BP at week 20 had less risk of PIH,[2] even if these women had high BP at week 16, a mid-pregnancy fall in BP is thought to be inversely correlated with the occurrence of PIH. As suggested by Metoki *et al.*,[3] endothelial function may contribute to the relationship between the mid-pregnancy fall in BP and the occurrence of PIH. In addition, we assessed the seasonal trend in BP changes during pregnancy. As shown in Table 1, pregnant women who delivered in the hot season (May to October, average daily temperature $\geqslant 15\,^{\circ}C$ in Tokyo) had higher BPs before 16 weeks and at 20 weeks of gestation than those who delivered in the cold season (December to April, average daily temperature $< 15\,^{\circ}C$ in Tokyo). By contrast, pregnant women who delivered in the cold season tended to have a higher BP at 30 weeks and after 34 weeks than those who delivered in the hot season. These results suggest that seasonal changes in temperature may affect clinic BP values during pregnancy. However, the occurrence of PIH was unaffected by the seasonal trend in BP changes. The odds ratio of PIH in pregnant women who delivered in the cold season was 0.63 compared with that in pregnant women who delivered in the hot season; this is statistically insignificant.

Consistent with previous studies showing that home BP fell from the first trimester to the second trimester and then continued to increase until the time of delivery,[3] and that pregnant women who delivered in winter tended to have higher home BPs than those who delivered in summer,[4] we confirmed the mid-pregnancy fall in BP and the seasonal trend in BP changes during pregnancy even if BPs are measured at the clinic. We hope that our study will inspire researchers to further examine the effects of the mid-pregnancy fall in BP and the seasonal trend in BP changes during pregnancy on predicting the risk of PIH.

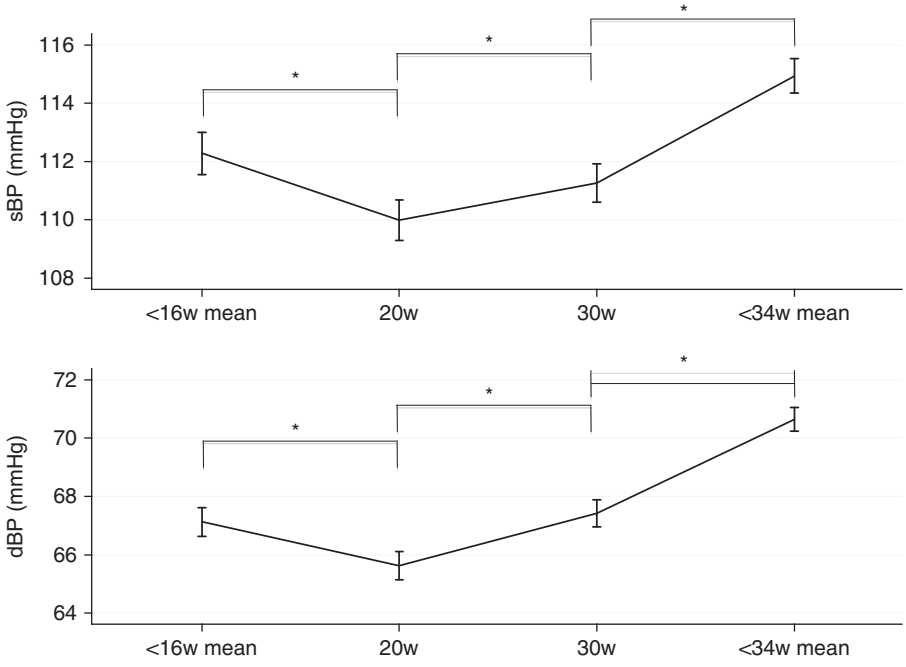

Figure 1 Systolic/diastolic blood pressure (sBP/dBP) in 976 pregnant women. *$P<0.0001$.

Table 1 BP values and OR (95% CI) of PIH stratified by season in 976 pregnant women

	EDC_Hot season (n = 503)		*EDC_Cold season (n = 473)*		P-value
Systolic BP					
Before 16 weeks of gestation	114.0	11.9	110.4	10.9	<0.0001
20 weeks of gestation	111.6	11.6	108.3	10.4	<0.0001
30 weeks of gestation	110.6	10.1	111.9	11.0	0.059
After 34 weeks of gestation	114.4	9.7	115.5	9.1	0.073
Diastolic BP					
Before 16 weeks of gestation	67.8	8.4	66.4	7.5	0.009
20 weeks of gestation	66.4	7.8	64.8	7.4	0.001
30 weeks of gestation	66.8	7.1	68.1	7.5	0.004
After 34 weeks of gestation	70.2	6.5	71.1	6.4	0.052
PIH	Reference		0.63	(0.30–1.3)	0.21

Abbreviations: BP, blood pressure; CI, confidence interval; EDC, estimated date of confinement; OR, odds ratio; PIH, pregnancy-induced hypertension.
BP values are given as mean (s.d.).
Occurrence of PIH is given as OR and 95% CI.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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