

to about 130% of the level present in erythrocytes of non-pregnant women.<sup>2</sup> In this study, the actual and the standardized P 50 were increased to about 2.5–3.0 mmHg. Moreover, hormonal changes during pregnancy could affect the red cell metabolism, *e.g.*, the 2,3 DPG level has been shown to be sensitive to changes in the concentration of thyroxin and prostaglandin.<sup>2,3</sup>

Furthermore, the authors did not discuss the leftward shift of the oxyhemoglobin dissociation curve in preeclamptic parturients. One explanation for the leftward shift could be hypophosphatemia which increases oxygen affinity of hemoglobin.<sup>4</sup> This electrolyte imbalance could be induced by excessive loss of phosphate, which occurs when hypokalemia is provoked by diuretic therapy in these patients. In any case, this remarkable observation should be commented upon.

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*In Reply:*—The effect of normal pregnancy on oxyhemoglobin dissociation (OHD) has been reported by several investigators. A leftward shift of OHD seen in preeclamptic pregnant women is new and surprising. Both normal and preeclamptic pregnancies are associated with complex changes in a variety of hormones, including prostaglandins. Several of these hormones are also known to cause shifts in OHD. We have discussed the possible causes for a leftward shift of OHD in a recent abstract describing the effect of pregnancy induced hypertension on OHD.<sup>1</sup> Evidence also suggests that there is increased red cell destruction in patients with toxemia of pregnancy.<sup>2</sup> In addition, we have recently reported that preeclamptic patients have significantly higher levels of carboxyhemoglobin compared with normal pregnant women.<sup>3</sup> We believe that the increased level of carboxyhemoglobin is principally responsible for the observed leftward shift in OHD. Our preeclamptic patients did not receive any diuretic therapy and, thus, hypophosphatemia from diuretic therapy is unlikely. Also, none of our patients at the time

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of the study was receiving any other drug that could possibly cause a shift in OHD.

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### pH-adjusted Lidocaine Does Not “Sting”

*To the Editor:*—The widespread practice at our institution of adding sodium bicarbonate to lidocaine solutions (ratio 1:10) to improve the success rate of regional anesthesia<sup>1</sup> has led to the observation that these pH-adjusted

solutions do not “sting” when injected intradermally or subcutaneously. The improvement in comfort when providing cutaneous anesthesia is striking. Starting an iv in a child, for example, is greatly facilitated when pH-ad-