

**TITLE:** BLOOD PRESSURE REGULATION DURING I-653 OR ISOFLURANE ANESTHESIA IN SWINE

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I-653 and isoflurane cause dose-dependent decreases in systemic vascular resistance and arterial blood pressure in swine. To determine whether these anesthetics interfere with regulation of blood pressure by altering secretion of vasoconstrictive substances, with approval of our institutional review board, we measured plasma epineprine, nor-epinephrine, vasopressin (LVP), and renin activity (PRA) in 8 young, 15-20kg swine while conscious, and anesthetized with approximately 0.75, 1.1, and 1.5 MAC I-653 and isoflurane. Plasma catecholamine concentrations were measured by xx, and PRA and LVP by RIA. Data were compared by analysis of variance with repeated measures.

In all animals plasma epinephrine and norepinephrine concentrations were always below the detectable limits of the assay (50-80 pg/ml). PRA and LVP plasma concentrations varied directly with anesthetic concentration (fig 1) and inversely with mean arterial blood pressure (fig 2) with both anesthetics. Plasma LVP concentrations did not differ between the two anesthetics, and was a function of arterial blood pressure independent of anesthetic. PRA was significantly greater at 0.75 and 1.5 MAC I-653 than at similar anesthetic depths of isoflurane.

We conclude that the cardiovascular changes caused by I-653 and isoflurane induce marked increases in PRA and LVP which,

nevertheless, do not maintain normal blood pressure. This is consistent with the earlier finding that isoflurane causes dose-dependent depression of the vascular activity of LVP.<sup>2</sup> Both anesthetics appear to prevent increases in circulating catecholamines, despite significant arterial hypotension.

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*References:* 1. Anesthesiology 69: 303-9, 1988

2. Fed Proc 44: 816, 1985

Fig 1

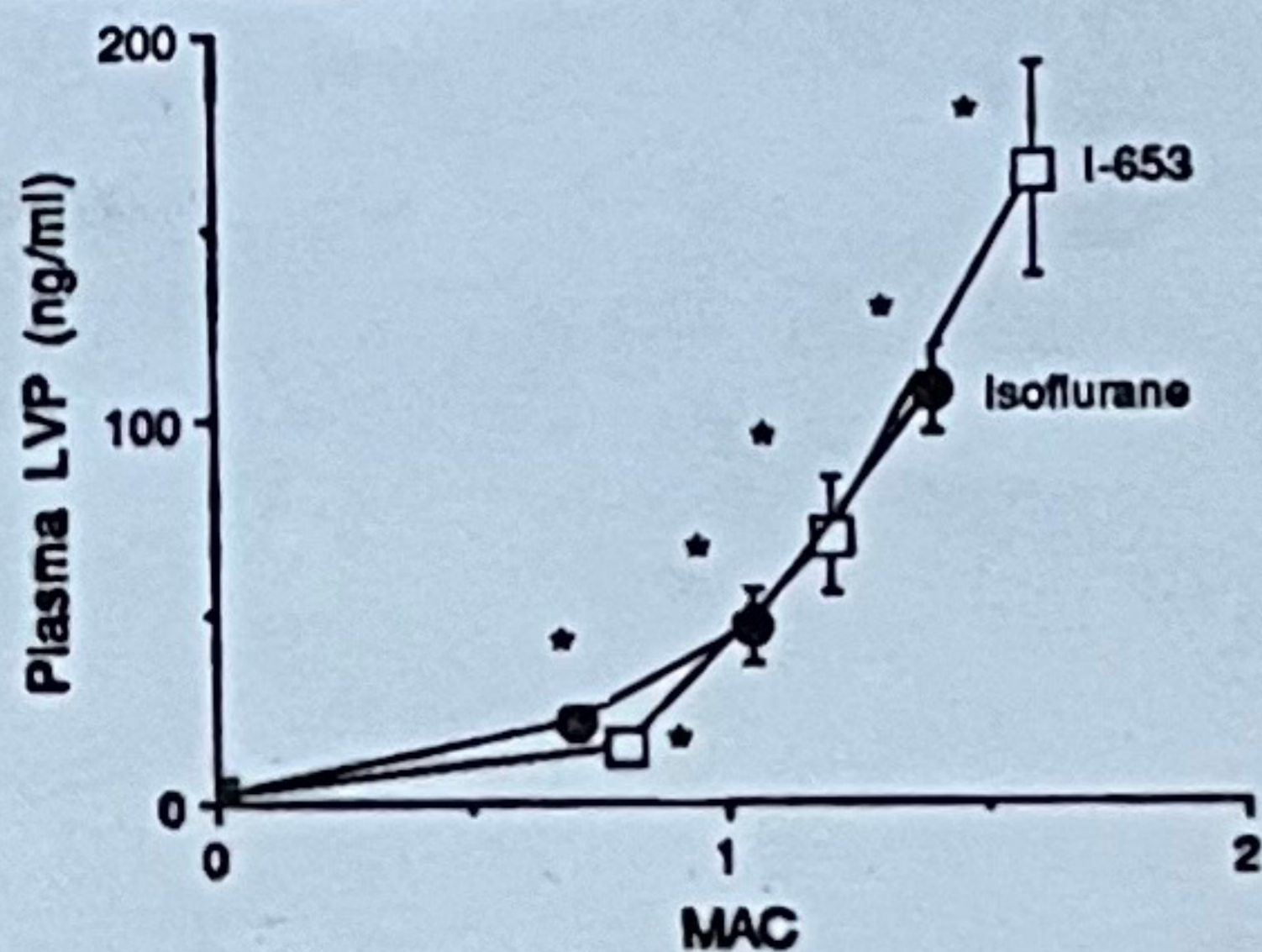
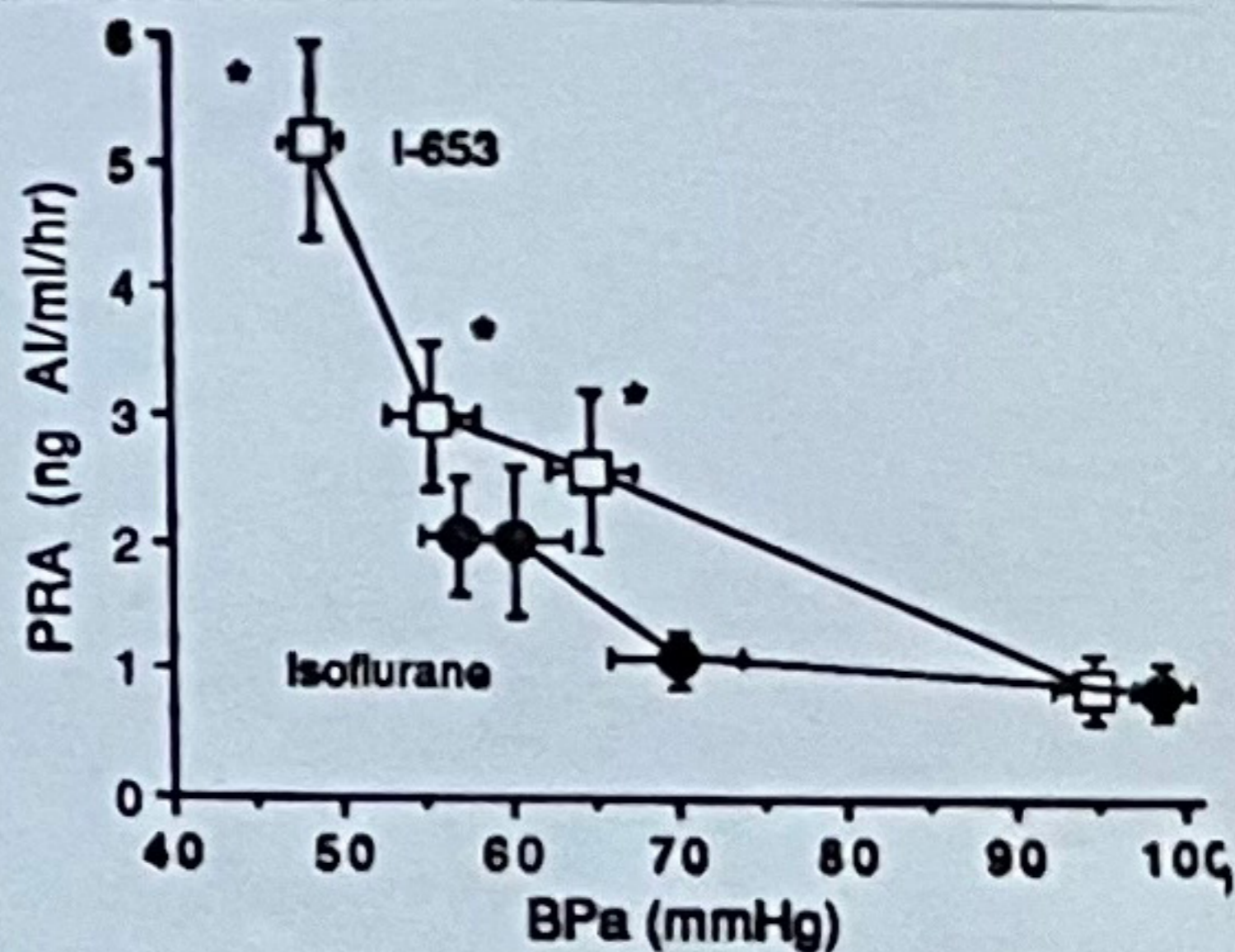
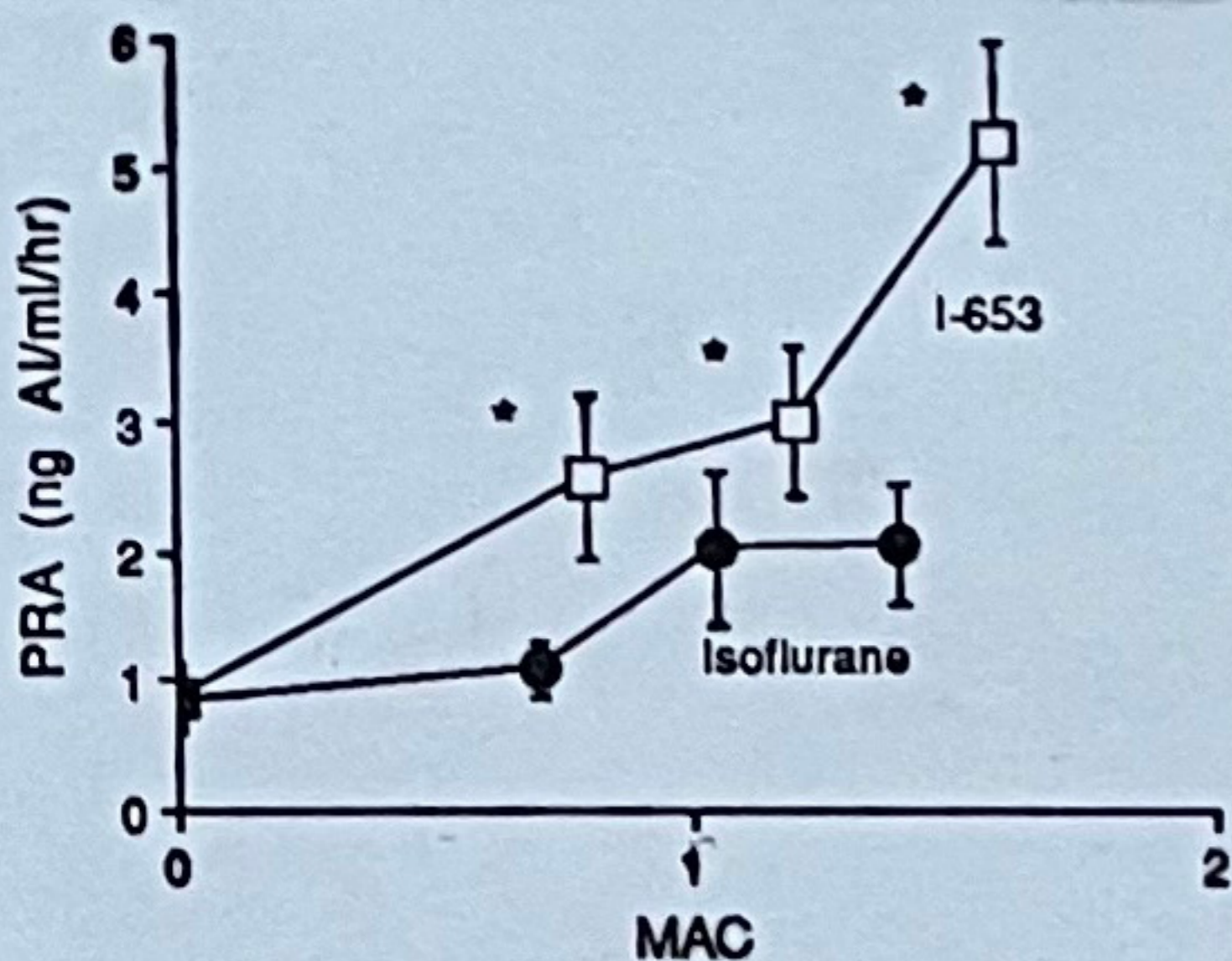
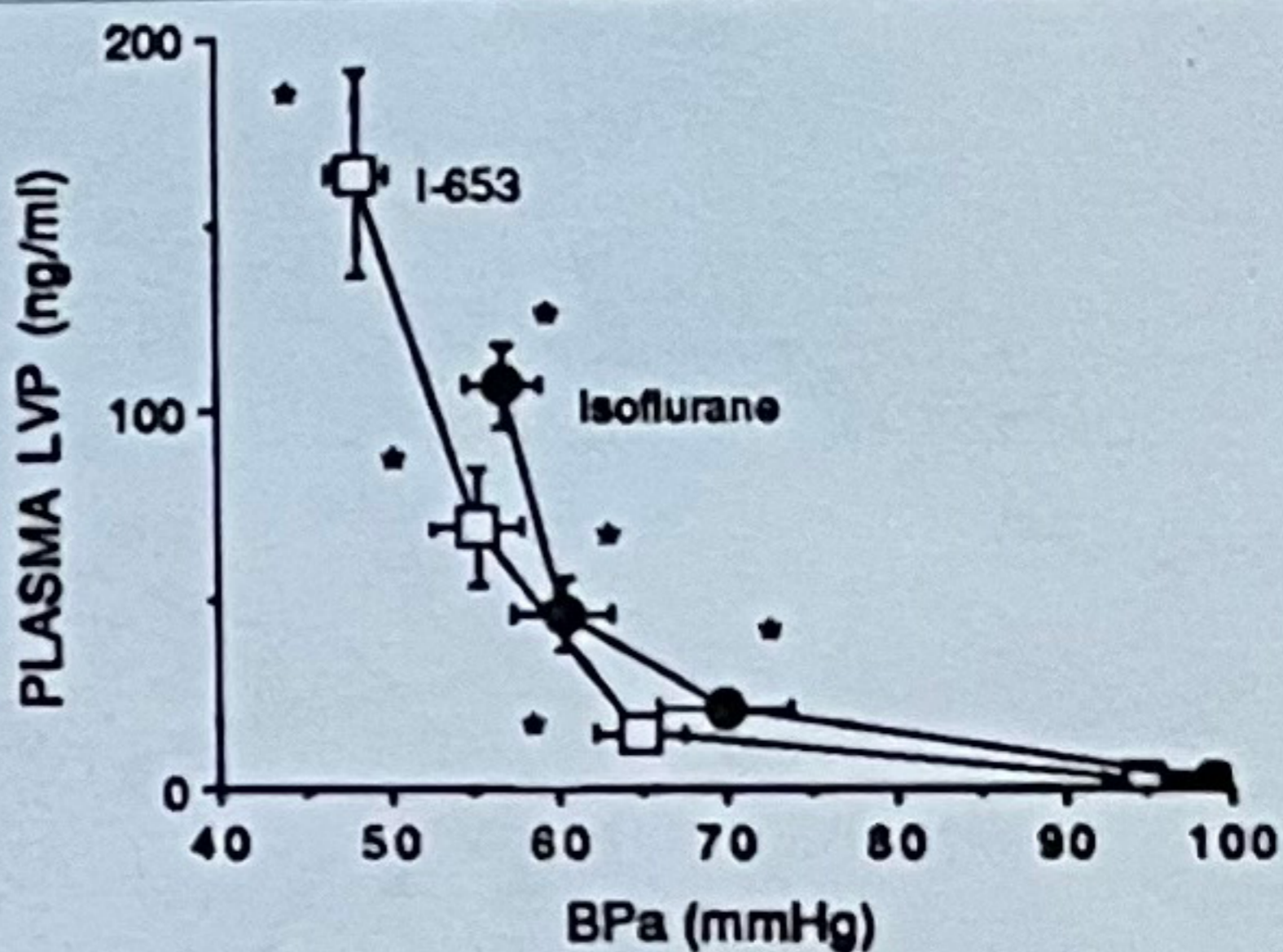


Fig 2



\* P < 0.05 compared to conscious value. Data are mean ± SE