Role of sulfhydryl groups an the stimulatory effect of captopril on vascular prostacyclin synthesis

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The effect of captopril on vascular prostacyclin production was studied, evaluating which of its components - sulfhydryl (SH) group or proline - is responsible for this effect. Rat aortas were incubaicd with captopril (10-100 ?M), 2-mercaptoethanol or proline (10 ?M), and captopril plus the SH-binding reagents N-ethylmaleimide or ethacrynic acid (50 gmM). Prostacyclin was measured by radioimmunoassay of 6-keto-prostaglandin F1? Captopril stimulated prostacyclin production. This effect was associated with an enhanced conversion of arachidonate to prostacyclin and was not related to bradykinin. Since 2-mereaptoethanol increased vascular prostacyclin per se and proline did not, the stimulatory effect of captopril appears to be dependent upon the SH group; in addition, both SH Mockers, N-ethylmaleimide and ethacrynic acid, antagonized this effect. This study shows that captopril stimulates vascular prostacyclin synthesis directly and that the SH group plays a key role in this action. This