Effect of estrogen on coronary vasoconstriction in patients undergoing coronary angioplasty: role of antioxidant effect

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摘要

Abstract

Background: Estrogen has an antioxidant potential which may contribute to its cardioprotective effect. We sought to determine whether estrogen administration can affect coronary vasomotor tone in patients after angioplasty by reducing 8-iso-prostaglandin (PG) F2?? concentrations, a bioactive product of lipid peroxidation. Methods: The study was designed to prospectively investigate 30 consecutive patients scheduled for elective coronary angioplasty. Patients were randomized into two groups according to whether they did not (group 1, n=15) or did have (group 2, n =15) intracoronary (i.c.) treatment with estrogen prior to coronary angioplasty. Results: There were no significant differences of collateral circulation assessed by intracoronary Doppler flow velocity during balloon inflations between the study groups. The diameters of the coronary artery at the dilated and distal segments were significantly reduced 15 min after dilation compared with those immediately after dilation in group 1 (both P<0.0001). The vasoconstriction was significantly blunted in group 2. The 8-iso-PGF2?? levels in plasma from the coronary sinus rose significantly from 194??45 to 390??97 pg/ml (P<0.0001, 95% confidence intervals=142???249 pg/ml) 15 min after angioplasty in group 1, which was attenuated after administering estrogen. Significant correlation was found between the changes of coronary vasomotion of the dilated segment and 8- iso-PGF2?? levels in group 1 (r=0.73, P=0.002) . Conclusions: 8-iso-PGF2? ? is released into the coronary circulation during angioplasty, and this vasoactive substance may contribute to the occurrence of vasoconstriction. Estrogen administration attenuated vasoconstriction by reducing the 8-iso -PGF2?? levels. This finding may provide a new strategy to treat coronary vasoconstriction after angioplasty.