When radioactive sources are used to treat restenosis in intravascular brachytherapy, in most cases the blood vessels are curved even though the sources are usually manufactured in a linear arrangement. To investigate the effects of the curvature on the dose distribution in the blood vessels, calculations were performed on a 2cm long cylindrical blood vessel of 2mm radius of different curvatures. The radioactive source of ^{192}Ir, ^{125}I, ^{103}Pd, ^{188}Re, ^{32}P, and ^{90}Y were studied. All the sources were assumed to be in the form of line and had a length of 3cm. It was found that curvature changed the dose uniformity and dose distribution. In general, curvature caused an increase in dose in the inner surface (toward the curvature) of blood vessels and a decrease in dose in the outer surface (away from the curvature), and the changes increased with the increase of curvature. Depending upon radionuclide, if the source was placed at the central axis of blood vessels, the maximum increase was in the range of 20% to 30% and the maximum decrease was in the range of 10% to 15% when the curvature was less than 45 degree. It seemed that the curvature had similar effects for all the radionuclides studied, no matter whether or not it was a photon emitter or electron emitter.