INFLUENCE OF ALBUMIN GLYCATION ON THE DRUG-PROTEIN BINDING

건국의대 약리 : 배진우, 맹 성호

Glycation is occurred by covalent binding between the carbonyl group of monosaccharides and epsilon amino group of amino acid. It is well known to the various alteration of physiological function of protein by glycation which can be the cause of diabetic complications. In this study the influence of glycation on drug-protein binding has been studied by using of equilibrium dialysis for warfarin, one of oral anticoagulants, dansylsarcosine as a model ligand for benzodiazepine, and tolbutamide, one of the oral hypoglycemic agents. These drugs are bound at binding site I and II of albumin specifically or unspecifically. After equilibrium dialysis the number of binding site and dissociation constants of albumin were calculated by scatchard plot. Warfarin binded to glycated albumin about 4% less than nonglycated albumin ($P<0.01$). The number of binding site and dissociation constants of glycated albumin for warfarin were 3.73 ±0.23, 152±23uM in comparison to 3.38±0.19, 135±20 uM of nonglycated albumin ($P<0.01$). Dansylsarcosine and tolbutamide binded to the albumin not statistic differently between glycated and nonglycated albumin. This indicate that only warfarin binding site (=binding site I) of albumin is influenced by glycation, but its influence to the drug-protein binding is not so great that it may not have clinical importance because of the low glyated albumin concentration and rapid elimination of free drugs in the body.