

薄膜固定肝素改善血液相容性

Heparin (an anti-thrombin) was immobilized onto microporous Poly(vinylidene fluoride) (PVDF) membranes that were prepared either by dry or by immersion precipitation method. The solvents for membrane formation were N,N-Dimethyl formamide (DMF) and 1-methyl-2-pyrrolidinone (NMP) whereas the nonsolvents were water and NMP. We immobilized heparin in two steps : first, poly(acrylic acid)(PAA) was grafted on porous PVDF membranes using plasma, then heparin was co-valently immobilized on carboxyl group of PVDF-grafted-PAA with the aid of the accelerant, water-soluble carbodiimide(WSC). After the first step, it was found that the PVDF membrane was fully covered by PAA and that the membrane's surface property was replaced by the later polymer. The maximal amount of grafted PAA was 0.68mg/cm². The reaction conditions such as temperature, concentration of reactants, pH etc., were found to affect the amount of immobilization. The maximal amount of heparin immobilization onto the membranes was 1.58 USP/cm², which is higher than Kang's result(0.35 USP/cm²). The heparinized membrane's blood compatibilities was investigated using platelet adhesion and activation experiments. The amount of platelet adhesion was decreased on heparinized membranes.