

A new approach to planning *in vitro* and *in vivo* experiments for cardiovascular stents – II. Planning of experiments

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Abstract

Within our overall project to improve the design of stents in terms of reduced rates of re-stenosis, there are three main methods, namely computer simulation and *in vitro* and *in vivo* experiments. These methods are closely integrated using contemporary design procedures described below, especially to accommodate patient-to-patient variation. Clinical experience shows that a small variation has considerable effects on flow characteristics of stents and in engineering terms may be described as a ‘geometric risk factor’. The Robust Engineering Design procedure readily incorporates this factor which may thus become a component feature in our experimental planning. We envisage that this approach could be applied to other invasive implants with a view to enhancing their quality.