

A study on the affect of novel surface treatments and biodegradable polymer coatings on corrosion and surface properties of ternary Nitinol alloy

C. Pulletikurthi, N. Munroe

Enhancing the biocompatibility of an implant implies its seamless integration into the body with increased health and longevity of the patient. However, polymer coating degradation, corrosion and metal ion release are some of the concerns in the failure of cardiovascular stents. This investigation is focused on assessing the biocompatibility of biodegradable polymer-coated and implantable ternary Nitinol alloys that are surface treated by magneto-electropolishing and electropolishing prior to coating. *In-vitro* biocompatibility studies such as polymer coating stability will be studied using electrochemical impedance spectroscopy (EIS) and potentiostat as per ASTM standards and whereas, degradation of polymer coatings will be conducted by performing static immersion tests. Surface morphology and surface chemistry of the aforementioned samples are studied using scanning electron microscopy (SEM) and X-ray photo electron spectroscopy (XPS) respectively.