This article will look at the advances in biomaterial design specifically drug eluting, non-drug eluting, lubricious coatings and micropatterning as well as some of the characteristics of each as they relate to CVCs” Wallace et al (2018).

Abstract:

Central venous catheters (CVCs) are ubiquitous in the healthcare industry and carry two common complications, catheter related infections and occlusion, particularly by thrombus. Catheter-related bloodstream infections (CRBSI) are an important cause of nosocomial infections that increase patient morbidity, mortality, and hospital cost.

Innovative design strategies for intravenous catheters can help reduce these preventable infections. Antimicrobial coatings can play a major role in preventing disease. These coatings can be divided into two major categories: drug eluting and non-drug eluting. Much of these catheter designs are targeted at preventing the formation of microbial biofilms that make treatment of CRBSI nearly impossible without removal of the intravenous device. Exciting developments in catheter impregnation with antibiotics as well as nanoscale surface design promise innovative changes in the way that physicians manage intravenous catheters. Occlusion of a catheter renders the catheter unusable and is often treated by tissue plasminogen activator administration or replacement of the line. Prevention of this complication requires a thorough understanding of the mechanisms of platelet aggregation, signaling and cross-linking. This article will look at the advances in biomaterial design specifically drug eluting, non-drug eluting, lubricious coatings and micropatterning as well as some of the characteristics of each as they relate to CVCs.

Reference:

Wallace, A., Albadawi, H., Patel, N., Khademhosseini, A., Zhang, Y.S., Naidu, S., Knuttin, G.

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