

**Therefore, we systematically assessed and quantified the inflammatory tissue response to steel versus Teflon CSII catheters over a maximum wear-time of 7 days in swine” Hauzenberger et al (2018).**

Abstract:

Continuous subcutaneous insulin infusion (CSII) catheters are considered the weak link of insulin pump therapy. Wear-time considerably varies between patients and the choice of catheter material is based on personal preferences rather than scientific facts. Therefore, we systematically assessed and quantified the inflammatory tissue response to steel versus Teflon CSII catheters over a maximum wear-time of 7 days in swine. Tissue surrounding catheters was analysed using histopathology and quantitative real-time PCR. The area of inflammation increased significantly over time independent of material which was confirmed by an increase in CD68 expression and an increase in mononuclear and neutrophil cell infiltrate around the catheters.

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We observed substantially higher fibrin deposition ( $p < 0.05$ ) around steel on day 4 of wear-time. IL-6 gene expression increased within 24 hours after insertion, returned to normal levels around Teflon ( $p < 0.05$ ) but remained high around steel ( $p < 0.05$ ). IL-10 and TGF- $\beta$  levels did not resolve over time, indicating impaired wound healing. In conclusion, there was a major temporal effect in the acute inflammatory response to CSII catheters but we found little difference between materials. This study setup presents a robust tool for the systematic analysis of the tissue response to CSII catheters.

Full Text

Reference:

Hauzenberger, J.R., Münzker, J., Kotzbeck, P., Asslaber, M., Bubalo, V., Joseph, J. and Pieber, T.R. (2018) Systematic in vivo evaluation of the time-dependent inflammatory



response to steel and Teflon insulin infusion catheters. Scientific Reports. 8(1), p.1132.

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