

Puncture Site Complications in Neuro-Endovascular Therapy: Risk Factors and Vascular Closure Device Efficacy

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Description

In recent years, neuro-endovascular therapy has seen significant advancements, expanding its applications for various therapeutic indications. While puncture site complications in neuro-endovascular therapy are relatively infrequent, they can lead to significant challenges in recovery and contribute to poor prognosis. These complications occur in a range of 0.67% to 9.7% of patients undergoing neuro-endovascular therapy, as reported in various studies. Data analysis from the Japanese Registry of Neuroendovascular Therapy (JR-NET) revealed that the incidence of puncture site vascular complications is approximately 0.73%. Alarming, a notable percentage of patients with puncture site complications experience permanent disabilities (7%) or even mortality (2%).

Puncture site complications

These statistics underscore the importance of identifying and mitigating risk factors associated with puncture site complications to enhance patient outcomes. To address this issue, Vascular Closure Devices (VCDs) have evolved as potential solutions. VCDs such as Perclose ProGlide™, ProStyle™, Angio-Seal™, and Exoseal™ offer several advantages, including shorter hemostasis time, earlier ambulation for patients, shorter hospital stays, and increased patient satisfaction. However, the effectiveness of VCDs in reducing the rate of puncture site complications remains uncertain, highlighting the need for further investigation. In this retrospective study, we aimed to conduct a comprehensive analysis of the risk factors associated with puncture site complications in neuro-endovascular therapy. By identifying these risk factors, we can better understand the underlying mechanisms contributing to these complications and develop strategies to mitigate them effectively. Several potential risk factors may contribute to puncture site complications, including patient characteristics, procedural factors, and device-related factors. Patient-related factors such as age, comorbidities, and vascular anatomy may influence the risk of complications. Procedural factors such as the complexity of the intervention, the expertise of the operator, and the type of access site used can also impact complication rates. Additionally, the choice and

performance of VCDs may play a role in the occurrence of puncture site complications. Through a thorough analysis of patient records and procedural details, we aim to identify specific risk factors associated with puncture site complications in neuro-endovascular therapy. By gaining insights into these risk factors, we can develop targeted interventions and protocols to minimize the occurrence of complications and improve patient outcomes. In conclusion, understanding the risk factors for puncture site complications is essential for enhancing safety in neuro-endovascular therapy.

Hemostasis

By identifying and addressing these factors, we can optimize patient care and minimize the risk of adverse events, ultimately improving the overall success and efficacy of neuro-endovascular interventions. Moreover, our study aims to contribute to the existing body of knowledge by providing insights into the specific factors that may predispose patients to puncture site complications. By conducting a thorough retrospective analysis, we seek to identify patterns and associations that may inform clinical practice and guide decision-making in neuro-endovascular procedures. In addition to identifying risk factors, our study also aims to evaluate the effectiveness of VCDs in reducing puncture site complications. While VCDs offer potential benefits in terms of faster hemostasis and improved patient comfort, their impact on complication rates remains uncertain. By analyzing real-world data and comparing outcomes between patients who received VCDs and those who did not, we hope to shed light on the role of VCDs in mitigating puncture site complications. Furthermore, our study underscores the importance of ongoing research and quality improvement initiatives in neuro-endovascular therapy. As technology and techniques continue to evolve, it is essential to evaluate their impact on patient outcomes and refine best practices accordingly. By collaborating with multidisciplinary teams and leveraging data-driven approaches, we can continue to enhance the safety and efficacy of neuro-endovascular interventions. In summary, our study represents a valuable contribution to the field of neuro-endovascular therapy by providing insights into puncture site complications and their associated risk factors. Through rigorous analysis and

collaboration, we aim to improve patient outcomes and advance the practice of neuro-interventional medicine.