Postoperative Deep Vein Thrombosis Prevention

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Recommended Citation

DeGraw, Jaidin; Elliott, Carrie; Jeffery, Cailey; Leone, Melina; and Mallory, Amber, "Postoperative Deep Vein Thrombosis Prevention" (2023). *Nursing Research and EBP Day 2023*. 2. 
https://scholar.rochesterregional.org/nursingresearchday_2023/2

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Postoperative Deep Vein Thrombosis Prevention

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Background
The prevention of postoperative complications, including deep vein thrombosis (DVT), has been a primary concern for providers. Over the twentieth century, heparin has been used prophylactically in an effort to reduce hospital stay. As research was developed, it was found that early ambulation and passive compression also decreased the likelihood of DVTs. Surgeons have utilized multiple methods in their postoperative DVT prevention; however, it was never discussed which method is more effective. In an effort to provide safe patient care and reduce hospital stay, research was required on invasive versus noninvasive measures.

Purpose
The purpose of this research is to determine the best method to prevent DVT in postoperative patients; that increases patient safety and patient health outcomes that in turn reduces hospital stay.

Recommendation
After reviewing the results of this research, the best recommendation for clinical practice is to utilize a combined use of prophylactic methods. Concurrent use of early ambulation, mechanical/noninvasive measures as well as pharmacological methods appears to be the most effective at reducing DVTs.

PICOT Question
In postoperative surgical patients, how do pharmacological or invasive measures compare to early ambulation, sequential compression devices, or noninvasive measures in DVT prevention?

Results
- DVT occurrence was lowest in those who had passive compression, compression stockings, and heparin (Sang CQ, 2018)
- There was no significant benefit to extended use of heparin compared to just inpatient postoperative use (Auer RC, 2022)
- Pharmacological prophylaxis did not have a notable significance, concurrent use of mechanical prophylaxis and early ambulation in low risk populations is an adequate method of prevention (Austin et al. 2018)
- The rate of DVTs and PEs in patients that underwent primary joint replacement was not statistically different between those who used mechanical prophylaxis and those who used chemical prophylaxis (Gill et al. 2019)
- SCDs were considered the safest option in the reduction of DVT events and the least invasive for patients. However, the use of heparin in conjunction with SCDs was most effective at reducing DVTs (Insin et al. 2021)
- Early ambulation significantly decreased the occurrence of DVT, PE, and post-op pain, as well as shortening hospital stays, lowering financial stress, and increasing quality of life. Early ambulation on post-op day 3 is more effective than post-op day 7.

Conclusion
Based on the data collected and analyzed, the idea of dual prophylactic measures is deemed more fitting than a single preventative measure. SCD plus heparin was noticeably more effective than heparin alone in terms of efficacy and safety (Insin et al. 2021). These studies confirm the effectiveness of combining non-invasive interventions, such as early postoperative ambulation and SCD application, with pharmacologic methods, like heparin and aspirin to prevent VTE. Not one prophylactic approach was considered best in all aspects, but rather the combination of all interventions was found to be more effective at reducing DVTs.

References
Available upon request