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REVIEW ARTICLE

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Compression therapy in the prevention of thromboembolic disease following total knee arthroplasty with a fast recovery protocol: A systematic review

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ABSTRACT

Thromboembolic disease (TED), including deep vein thrombosis (DVT) and pulmonary embolism (PE), remains a serious postoperative risk after total knee arthroplasty (TKA). Enhanced recovery after surgery (ERAS) protocols emphasize early mobilization, warranting reassessment of mechanical prophylaxis, such as compression therapy. This systematic review evaluates the benefits of compression therapy in preventing TED in TKA patients under ERAS protocols combined with pharmacological prophylaxis. A systematic review was conducted, analyzing seven studies comparing combined mechanical and pharmacological prophylaxis with pharmacological prophylaxis alone. Primary outcomes included DVT and PE incidence, compliance, adverse events, and efficacy. Seven studies were included in this systematic review, including 871 patients. Combined mechanical and pharmacological prophylaxis reduced DVT rates. Continuous enhanced circulation therapy (CECT) with enoxaparin lowered DVT from 19.5% to 6.6% (relative risk reduction (RRR) 66.2%, p=0.018), while intermittent pneumatic compression (IPC) with rivaroxaban reduced rates from 18.3% to 8.3% (RRR 54.5%, p<0.01). Pneumatic plantar compression (PPC) decreased DVT from 67% to 27% in unilateral and 52% to 28% in bilateral TKA (combined RRR 54.2%, p<0.001). Graduated compression stockings (GCS) with anticoagulation reduced DVT from 13.0% to 6.0% (RRR 53.8%, p=0.0872). IPC with nadroparin lowered DVT from 3.9% to 2.6% (RRR 33.3%, p=0.65). PE incidence remained minimal across studies. When combined with anticoagulants, mechanical prophylaxis may have an additional role in diminishing DVT incidence while alleviating postoperative swelling and pain. However, optimizing compliance, standardizing protocols, and tailoring thromboprophylaxis to patient-specific risks remain key challenges. Future research should refine mechanical and pharmacological strategies to enhance safety, efficacy, and recovery in TKA patients.

Keywords: Total Knee Arthroplasty, Thromboembolic Disease, Graduated Compression Stockings, Enhanced Recovery after Surgery, Venous Thromboembolism.

INTRODUCTION

Thromboembolic disease (TED), encompassing both deep vein thrombosis (DVT) and pulmonary embolism (PE), remains a substantial concern in the postoperative period following TKA. Globally, TED contributes to increased morbidity, prolonged hospital stays, and significant healthcare costs. Without the use of prophylactic measures, the incidence of DVT following TKA has been reported to range from 40% to over 80%[1-5].

Despite advancements in surgical techniques, anesthesia and postoperative care, the risk of these potentially life-threatening complications persists. Using pharmacological prophylaxis, symptomatic DVT rates before hospital discharge have been reduced to approximately 1%. Additionally, the persistent occurrence rate of symptomatic venous thromboembolism (VTE) between 4 to 12 weeks post-discharge ranges from 0% to 3.4%, underscoring the ongoing need for effective preventive strategies beyond pharmaceutical interventions[6].

To further mitigate the risks of TED, various prophylactic measures have been employed. Methods of mechanical prophylaxis in preventing TED include intermittent pneumatic compression (IPC) devices and venous foot pumps, as well as graduated compression stockings (GCS), which has been a staple in the prevention of DVT and PE for decades[7-11]. By exerting graduated pressure on the lower limbs, it enhances

venous return, reduces venous stasis, and lowers the incidence of thrombus formation.

The use of compressive therapy is well-documented in various surgical and non-surgical settings; however, its specific efficacy and role in the context of TKA performed under fast recovery protocols, also known as enhanced recovery after surgery (ERAS) protocols, requires further investigation. Given the distinct dynamics of early ambulation and expedited discharge in ERAS, the prophylactic measures traditionally employed may need reassessment and adaptation.

ERAS protocols have been adopted globally, encouraging patients to begin mobilization as soon as possible under multimodal analgesia, which can naturally enhance venous return and potentially reduce the incidence of DVT and PE[12-16]. By enhancing the overall patient experience and outcomes, ERAS protocols reduce the physical and psychological stress associated with surgery.

Therefore, the aim of this review is to assess the role of compressive therapy in preventing TED, particularly within the framework of TKA conducted under fast recovery protocols, to determine if it provides additional protection against VTE when combined with early mobilization and other ERAS strategies.

METHODOLOGY

A systematic review was conducted following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive literature search across PubMed, Embase, the Web of Science and the Cochrane Library was performed including studies up to August 2025. Our search strategy used a combination of keywords and Medical Subject Headings (MeSH-terms) related to "total knee arthroplasty", "venous thromboembolism", "deep vein thrombosis", "pulmonary embolism", "pharmacological prophylaxis", and "mechanical prophylaxis". This search yielded 788 studies in total: 205 from PubMed, 254 from Embase, 78 from the Cochrane Library, and 251 from the Web of Science. Results were then exported to EndNote21 for initial organization and preliminary review (Appendix 1).

After removing 326 duplicates, 462 unique studies remained. Two authors independently screened titles and abstracts for relevance, focusing on studies involving adult TKA patients under fast-track or ERAS protocols that compared combined pharmacological and mechanical prophylaxis with pharmacological prophylaxis alone. Studies that exclusively focused on one type of prophylaxis, lacked control groups, or did not report specific VTE outcomes were excluded. Eligible study designs included randomized controlled trials (RCTs), cohort studies, or case-control studies.

From the initial screening, 31 studies were selected for full-text review. Detailed assessment for the specific use of fast-track recovery protocols led to the exclusion of studies due to unsuitable design, irrelevant interventions, or insufficient outcome data. Ultimately, seven studies met all inclusion criteria, as illustrated in the PRISMA flow chart (Figure 1).

Data were extracted on study design, population characteristics, interventions, VTE outcomes (including DVT and PE), compliance, follow-up periods, and risk of bias. Mechanical prophylaxis methods varied across studies and included GCS, IPC devices, and foot pumps. In two studies, both intervention and control groups used GCS, with additional mechanical methods in the intervention group, allowing assessment of the incremental benefit beyond GCS alone.

The risk of bias across the included studies was assessed using the Cochrane Risk of Bias 2.0 tool, these results are available in Table I.

RESULTS

Study Characteristics

The seven studies included in this review investigated the effectiveness of compressive stockings and other mechanical interventions in preventing thromboembolic events after a TKA under early mobilization protocols in 876 patients[17-23]. The total sample sizes across the studies ranged from 48 to 201 participants. The largest study involved 201 patients, who were divided into two groups of 105 and 96[18].

The demographics of the study populations were relatively balanced, with most studies including patients aged 45 or older, undergoing primary unilateral or bilateral TKA. The studies involved both male and female patients, although some studies had predominantly female participants[17-23].

Interventions varied across the studies, including the use of GCS, IPC, or foot compression. These mechanical methods were combined with a range of anticoagulants such as enoxaparin, rivaroxaban, or aspirin. The duration of use for mechanical prophylaxis varied, with some studies utilizing GCS for 11 to 14 days, while others applied IPC for shorter periods, such as 48 hours continuously postoperatively, followed by intermittent use[17-23]. Follow-up ranged from four days postoperatively until up to three months after surgery.

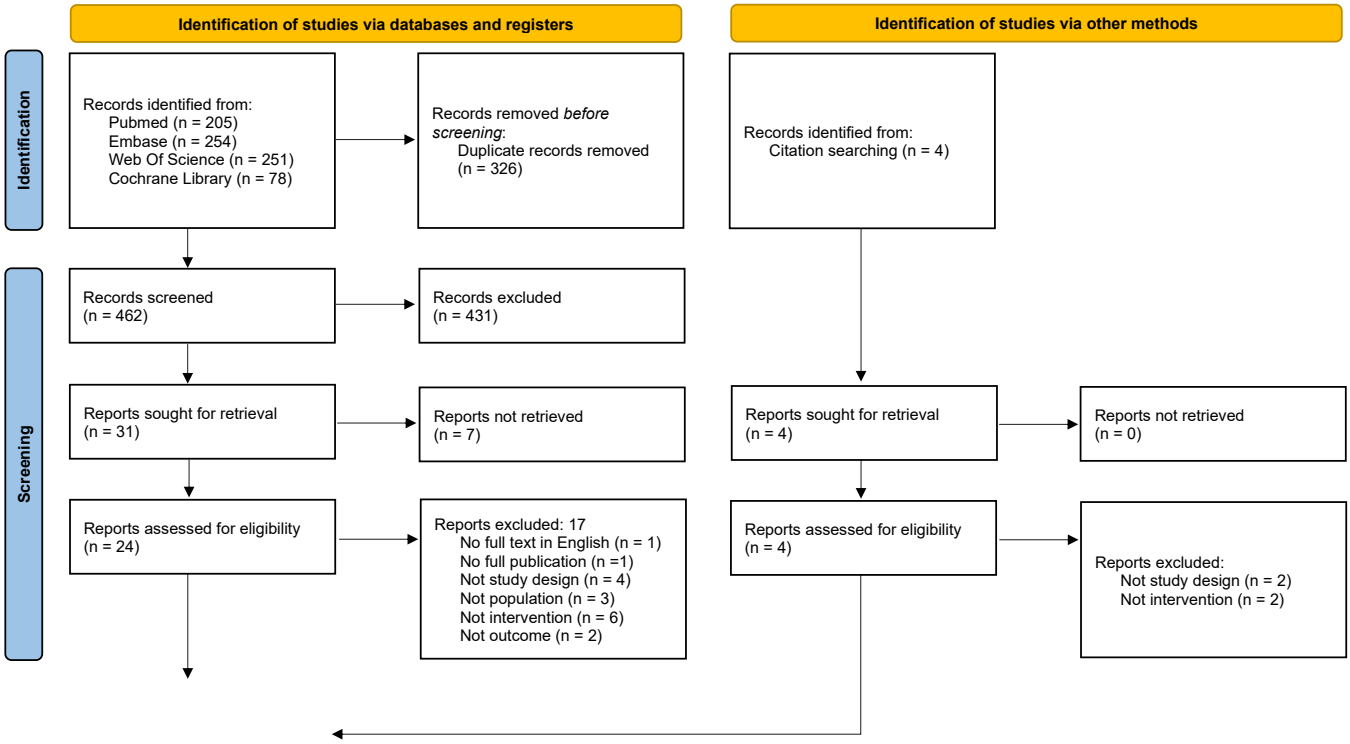

Fig. 1 — PRISMA flow diagram.

Table I. — Cochrane risk of bias.

Study	Randomization Process	Deviations from Interventions	Missing Outcome Data	Measurement of Outcome	Selection of Reported Result	Overall Risk of Bias
Edwards et al. 2008	Some concerns	Low risk	Low risk	Some concerns	Low risk	Some concerns
Fuji et al. 2016	Low risk	Low risk	Low risk	Low risk	Low risk	Low Risk
Liu et al. 2017	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Tamir et al. 1999	Some concerns	Low risk	Low risk	Some concerns	Low risk	Some concerns
Westrich et al. 1996	Some concerns	Low risk	Low risk	Low risk	Low risk	Some concerns
Moretti et al. 2002	Some concerns	Low risk	Low risk	Some concerns	Low risk	Some concerns
Windisch et al. 2011	Some concerns	Low risk	Low risk	Low risk	Low risk	Some concerns

Diagnostic modalities included duplex ultrasound between day three and ten in five studies[17-23]), as well as venography between day four and eleven in 2 studies[18,21]. Venography was conducted after positive ultrasound result to confirm suspected DVT or in case of unclear result in one study[20].

In five studies, the control groups received pharmacological prophylaxis alone, while the intervention groups were provided with both mechanical and pharmacological interventions[17-21]. In two studies, both groups received compressive stockings, but the intervention group received additional mechanical prophylaxis[22,23].

This review primarily focused on outcomes related to VTE, including DVT and PE in TKA patients (Table II & III).

Reduction in VTE incidence

Mechanical prophylaxis combined with pharmacological interventions effectively reduced the incidence of VTE, especially DVT, across most of the studies. Both compressive stockings and IPC were effective in unilateral and bilateral TKA, although the degree of effectiveness varied depending on the type and duration of mechanical prophylaxis. Substantial reductions in DVT incidence were reported in five out of seven studies (Figure 2), with relative risk reduction (RRR) values ranging from 33.3% to 66.2%, depending on the intervention used[17-19,21,22].

Edwards et al. demonstrated that the combination of enoxaparin with continuous enhanced circulation

Table II. — Relative Risk Reduction (RRR) and number needed to treat (NNT) of studies included reporting DVT events.

Study	RRR	NNT	p-value
Edwards et al.	66.2%	7.8	0.018
Liu et al.	54.5%	10	<0.01
Westrich et al.	54.2%	3	<0.001
Fuji et al.	53.8%	14.3	0.0872
Moretti et al.	33.3%	76.9	0.65

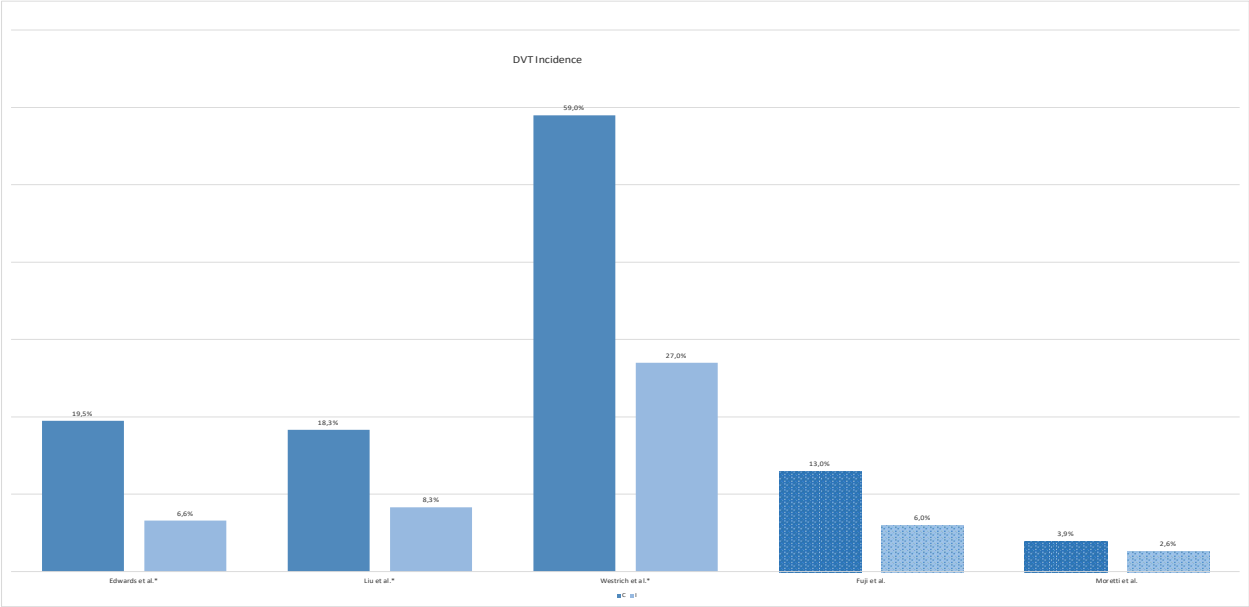

*Fig. 2 — DVT Incidence (C = Control group, I = Intervention group, *statistically significant).*

therapy (CECT) dropped the DVT rates from 19.5% to 6.6%[17], corresponding to a RRR of 66.2% and a NNT of 7.75 (p=0.018). Similarly, Liu et al. observed a reduction from 18.3% to 8.3% with rivaroxaban and IPC, yielding an RRR of 54.5% (NNT=10, p<0.01). A subgroup analysis by Westrich et al. demonstrated that DVT rates fell from 67% to 27% in unilateral patients and from 52% to 28% in bilateral patients using aspirin with pneumatic plantar compression (PPC), thus making the combined RRR 54.2% (NNT=3, p<0.001)[21].

In the study by Fuji et al., the incidence of VTE decreased from 13.0% to 6.0%, representing a two-fold reduction with a RRR of 53.8% (NNT= 14.29, p=0.0872) in VTE incidence compared to those receiving anticoagulation alone, when GCS were combined with anticoagulation[18]. Moretti et al. observed a smaller reduction in DVT incidence from 3.9% in the control group to 2.6% in the intervention group, with the use of IPC added to stockings and nadroparin, resulting in a smaller RRR of 33.3% (NNT = 76.9, p=0.65)[18].

Both Moretti et al. and Liu et al. used IPC as part of their mechanical prophylaxis regimen. Moretti combined IPC with nadroparin, while Liu combined it with rivaroxaban. The reductions in DVT incidence were significant in Liu's study (p<0.01), while Moretti reported a more modest reduction without reaching significance (p=0.65)[19,22].

Distal DVT location was reported in two studies, without occurrence of proximal DVT[19,22], while one study reported occurrence of both proximal and distal DVT[21]. Two other studies failed to specify the location of DVT[18,22].

One study reported a PE event, with one PE case in both the intervention and control group[17]. The other studies reported no PE events, suggesting a relatively low incidence in these patient cohorts.

Statistical Significance

Of the seven studies reviewed, three demonstrated statistically significant reductions in DVT incidence, highlighting the benefits of combining pharmacological with mechanical prophylaxis[17,19,21]. In addition, Fuji

Table III. — Summary of Study Characteristics and Findings (*when specified, RCT = Randomized Controlled Trial, I = Intervention, C = Control, IPC = Intermittent Pneumatic Compression, LOS = Length of stay, GCS = Graduated Compression Stockings, AVI = A-V Impulse System, CECT = Continuous Enhanced Circulation Therapy, PFC = Pneumatic Foot Compression, PPC = Pneumatic Plantar Compression

Category	Edwards et al., 2008 [17]	Fuji et al., 2016 [18]		Liu et al., 2017 [19]	Tamir et al., 1999 [20]	Westrich et al., 1996 [21]	Moretti et al., 2002 [22]	Windisch et al., 2011 [23]
Study Design	RCT	Post-hoc analysis of RCT		RCT	RCT	RCT	RCT	RCT
Sample Size	153	201		120	48	80 unilateral, 42 bilateral	152	80
Study Population and characteristics	Balanced demographics	Predominantly female		Balanced demographics > 45 y/o	Predominantly female	Predominantly female	Predominantly female	Balanced demographics
Intervention Duration	During hospitalization	11-14 days		48h post-op, avg. 66h after	7 days (48h post-op, avg. 16h per day after)	Mean of 5 days	4 days, 23h/day	8 days
Duration of Follow-up	3 months	25-35 days after last dose		21 days post-randomization	7 days post-surgery	4-7 days post-surgery	30 days post-surgery	3 months
Risk of Bias	Some concerns	Some concerns		Low risk	Some concerns	Some concerns	Some concerns	Some concerns
Intervention group	CECT + Enoxaparin 30mg 2dd	GCS + Edoxaban 30mg	GCS + Enoxaparin 20mg	IPC + Rivaroxaban 10 mg	PFC + Enoxaparin 40mg	PPC + Aspirin 325mg	IPC + GCS + Nadroparin 60 IU/kg	GCS + AVI system + Enoxaparin 40 mg
Control Group	Enoxaparin 30mg 2dd	Edoxaban 30mg	Enoxaparin 20mg	Rivaroxaban 10mg	Enoxaparin 40mg	Aspirin 325mg alone	GCS + Nadroparin 60 IU/kg	GCS + Enoxaparin 40 mg
DVT location*, incidence and significance	I: 6.6% (5/76) C: 19.5 C: 19.5% (15/77) Yes, P = .018	I: 6.0% (6/101) C: 13.0% (13/100) No, Total: P = 0.0872		I: 8.3% (5/60) C: 18.3% (11/60) Yes, P < 0.01	No clinical DVTs reported No significance	I: 27% (22/81) C: 59% (49/83) Yes, P < 0.001	I: 2.6% (2/76) C: 3.9% (3/76) P = 0.65	No clinical DVTs reported No significance
PE Incidence and significance	I: 1/76 C: 1 /77 No significance	None reported		None reported	None reported	None reported	None reported	None reported
Length of Stay (LOS) in days	I: 3.1 C: 3.3	I: 3.6 ± 1.4 C: 2.2 ± 0.7	I: 3.8 ± 2.1 C: 2.4 ± 0.8	Not specified	Not specified	Not specified	Not specified	Not specified

and Moretti, despite reporting notable reductions in VTE, did not achieve statistical significance[18,22].

Other outcomes

Tamir et al. reported that pneumatic foot compression reduced limb swelling and pain compared to anticoagulation alone. Furthermore, they found significant reductions in pain scores (6.13 vs. 3.33, $p<0.005$) in the intervention group at one week[20]. Additionally, Westrich et al. found that pneumatic plantar compression significantly reduced postoperative swelling in TKA patients[21].

The reviewed studies reported minimal adverse events related to the use of mechanical prophylaxis devices. No major complications related to the use of IPC or GCS, such as skin irritation or bleeding, were reported in any of the studies.

The length of stay (LOS) varied between the two studies reporting it. Fuji et al. reported an LOS ranging from 2.2 ± 0.7 days in one control group to 3.8 ± 2.1 days in one intervention group. Both groups (enoxaparin or edoxaban) using GCS had an overall longer LOS[18]. Edwards et al. recorded a non-significant shorter LOS in the intervention group (3.1 days) versus the control group (3.3 days)[17].

Higher compliance with compression devices in the early postoperative period is linked to a reduced risk of DVT. Windisch noted the highest compliance in the first days postoperatively, with reduced adherence afterwards likely due to increased mobility[23]. Westrich found that DVT-negative patients used the device for a mean of 96 ± 23.4 hours (19.2 ± 5.1 hours/day), whereas those with DVT had significantly lower usage (67 ± 21.1 hours total, 13.4 ± 4.3 hours/day, $p < 0.001$)[21]. Edwards reported compliance rates of 83%–87% in DVT-negative patients versus 77% in those with DVT (17). Tamir, Liu, Fuji, and Moretti did not report on compliance[18-20,22].

DISCUSSION

This review demonstrated the additional effect of compression therapy in preventing TED in TKA patients under ERAS protocols, highlighting its complementary role alongside pharmacological prophylaxis and early mobilization. Additionally, compression therapy contributed to reduced postoperative swelling and pain, supporting faster, more comfortable recovery within ERAS protocols.

Preventing TED following TKA remains a complex challenge in orthopedic surgery. While pharmacological prophylaxis with anticoagulants is advised in ERAS as well as NICE guidelines, mechanical methods are not part of standard protocols, although they offer advantages including reduced bleeding risk and non-invasiveness[14,24]. Beyond their primary role in preventing TED, compression therapy has demonstrated additional benefit, as pneumatic foot compression effectively reduced postoperative limb swelling and pain compared to anticoagulation alone[20], as well as pneumatic plantar compression similarly reducing swelling in TKA patients[21]. These broader effects highlight the potential of mechanical devices to improve not only thromboembolic outcomes, but also overall recovery, further supporting their integration into multimodal strategies.

Compliance remains a decisive factor; portable, patient-friendly devices allow for continued use during ambulation, and lead to superior adherence and outcomes[17,20]. In ERAS protocols, maintaining compliance with mechanical devices can be challenging, particularly as early mobilization is encouraged. However, higher compliance with mechanical prophylaxis has been associated with a reduced incidence of DVT, reinforcing its critical role in patient outcomes[20]. Strategies to improve adherence, including patient education, simplified device design, and use of monitoring technologies, may further enhance outcomes, particularly for high-risk patients[25,26].

Differences in TED risk between unilateral and bilateral TKA underscore the need for tailored thromboprophylaxis strategies. Westrich reported a greater reduction in DVT incidence in unilateral patients (67% to 27%) than in bilateral cases (52% to 28%)[17,21]. This disparity can be attributed to the longer recovery times, greater immobility, and extended surgical stress associated with bilateral procedures[27-29]. These findings highlight the importance of tailoring thromboprophylaxis strategies in bilateral TKA patients, implicating the value of compression therapy under specific circumstances. High-risk populations, such as those undergoing bilateral TKA, may benefit from more intensive or extended interventions, while simplified regimens may suffice for low-risk patients.

To our knowledge, this is the first review highlighting the additional effect of compression therapy in TKA patients under ERAS protocol. An earlier review by Kakkos et al. included 356 patients after TKA over three studies without an emphasis on early mobilization[30]. They evaluated the use of compression therapy in TKA patients, demonstrating a significant reduction using compression therapy combined with pharmacological prophylaxis over

pharmacological prophylaxis alone, with a NNT of seven. These results offer additional prove of the benefit of combined mechanical and pharmacological prophylaxis over pharmacological prophylaxis alone.

Limitations of our study include the wide variety of pharmacological and mechanical treatment methods, which poses potential difficulties in comparing outcome, and precluded us from performing a meta-analysis. While only three of the included studies analyzed in this review reported a statistically significant reduction in DVT rates[16,19,20], a potential additional effect compared to pharmacological prophylaxis alone was reported in all studies reporting DVT events[18,22]. As standard of care concerning ERAS evolved over the last decades, studies using more restrictive mobilization strategies were included in this review, which might overestimate the effect of compression therapy[22,23]. Despite the promising outcomes of combined approaches, inconsistencies in statistical significance across studies, due to small sample size, dilution or lack of statistical power, emphasize the need for standardization and improved research design. Such inconsistencies highlight the importance of larger, adequately powered studies to draw robust conclusions. Additionally, variability in compliance documentation and reporting further complicates the interpretation of results, underscoring the need for standardized adherence monitoring.

While our findings underscore the value of compression therapy, several gaps in the literature were identified. The lack of robust, large-scale studies specific to ERAS pathways, along with variations in study design and inconsistent reporting of clinically significant outcomes like PE, limits the generalizability of these results. Additionally, ensuring patient compliance with mechanical devices remains an ongoing challenge, particularly in the context of early mobilization.

CONCLUSION

In conclusion, compression therapy may have an additive role in multimodal TED prevention in TKA patients, but evidence is inconsistent, and further large-scale trials are required. Future research should focus on standardizing prophylaxis protocols, optimizing patient adherence, and better integrating mechanical devices into ERAS protocols.

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Appendix 1 Search strategies

Search strategies

PUBMED: 205

((TKA[tiab]) OR ("Total Knee Arthroplasty"[tiab]) OR (TKR[tiab]) OR ("Total Knee Replacement"[tiab]) OR ("arthroplasty, replacement, knee"[MeSH Terms]))
AND ((Thromboembo*[tiab]) OR (TED[tiab]) OR (DVT[tiab]) OR ("Deep Venous Thrombo*"[tiab]) OR ("Deep Vein Thrombo*"[tiab]) OR ("Venous Thrombo*"[tiab]) OR (VTE[tiab]) OR ("Pulmonary Embolism"[tiab]) OR (Thrombo*[tiab]) OR ("Blood Clot*"[tiab]) OR ("Thromboembolism"[MeSH Terms]) OR ("Pulmonary Embolism"[MeSH Terms]) OR ("Venous Thrombosis"[MeSH Terms]))
AND (("Compressive Stocking*"[tiab]) OR (Stocking*[tiab]) OR (Pneumatic*[tiab]) OR (Elastic*[tiab]) OR ("stockings, compression"[MeSH Terms]) OR ("Intermittent Pneumatic Compression Devices"[MeSH Terms]) OR ("Compression Bandages"[MeSH Terms]))

EMBASE: 254

('tka':ti,ab,kw OR 'total knee arthroplasty':ti,ab,kw OR 'tkr':ti,ab,kw OR 'total knee replacement':ti,ab,kw OR 'total knee arthroplasty'/exp OR 'total knee arthroplasty') AND ('thromboembo*':ti,ab,kw OR 'dvt':ti,ab,kw OR 'deep venous thrombo*':ti,ab,kw OR 'deep vein thrombo*':ti,ab,kw OR 'venous thromboembolism*':ti,ab,kw OR 'vte':ti,ab,kw OR 'pulmonary embolism':ti,ab,kw OR 'thrombo*':ti,ab,kw OR 'thromboembolism'/exp OR 'thromboembolism' OR 'lung embolism'/exp OR 'lung embolism' OR 'vein thrombosis'/exp OR 'vein thrombosis') AND ('compressive stocking*':ti,ab,kw OR 'stocking*':ti,ab,kw OR 'pneumatic*':ti,ab,kw OR 'elastic*':ti,ab,kw OR 'compression sleeve'/exp OR 'compression sleeve' OR 'intermittent pneumatic compression device'/exp OR 'intermittent pneumatic compression device')

WEB OF SCIENCE: 251

1: ALL=("total knee arthroplasty") OR ALL=(TKA) OR ALL=(TKR) OR ALL=("Total knee Replacement") Results: 40431
2: ALL=(Thromboembo*) OR ALL=(DVT) OR ALL=("Deep Venous Thrombo*") OR ALL=("Deep Vein Thromb*") OR ALL=("Venous thromboembo*") OR ALL=(VTE) OR ALL=("Pulmonary Embolism") OR ALL=(Thrombo*) OR ALL=("Blood Clot*") Results: 627039
3: ALL=("Compressive Stocking*") OR ALL=(Stocking*) OR ALL=(Pneumatic*) OR ALL=(Elastic*) OR ALL=("Compression Bandage*") Results: 713744
4: #3 AND #2 AND #1 251

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#1 (TKA):ti,ab,kw 3974
#2 ("total knee arthroplasty"):ti,ab,kw 7003
#3 (TKR):ti,ab,kw 842
#4 ("total knee replacement"):ti,ab,kw 2683
#5 ("total knee arthroplasties"):ti,ab,kw 226
#6 ("total knee joint prosthesis"):ti,ab,kw 1
#7 MeSH descriptor: [Arthroplasty, Replacement, Knee] explode all trees 3981
#8 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 9570
#9 MeSH descriptor: [Embolism and Thrombosis] explode all trees 10897
#10 MeSH descriptor: [Pulmonary Embolism] explode all trees 1531
#11 (thrombosis):ti,ab,kw 21825
#12 (thromboembo*):ti,ab,kw 12444
#13 (DVT):ti,ab,kw 2865
#14 ("Deep Venous Thrombosis"):ti,ab,kw 1818
#15 ("deep vein thromboses"):ti,ab,kw 90
#16 ("venous thrombo-embolic disease"):ti,ab,kw 3
#17 ("venous thromboses"):ti,ab,kw 67
#18 (VTE):ti,ab,kw 2819
#19 ("pulmonary embolism"):ti,ab,kw 4543
#20 ("blood-clot"):ti,ab,kw 2742
#21 (thrombo*):ti,ab,kw 61954
#22 #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 65560
#23 MeSH descriptor: [Compression Bandages] explode all trees 629
#24 MeSH descriptor: [Intermittent Pneumatic Compression Devices] explode all trees 206
#25 ("Compression Stockings"):ti,ab,kw 824
#26 ("Stockings"):ti,ab,kw 1296
#27 (Pneumatic*):ti,ab,kw 2335
#28 (elastic*):ti,ab,kw 6623
#29 #23 OR #24 OR #25 OR #26 OR #27 OR #28 9947
#30 #8 AND #22 AND #29 80