



โรงพยาบาลธรรมศาสตร์
เฉลิมพระเกียรติ



Systematic review and meta-analysis of non-thermal vs. thermal ablation

Assoc. Prof. Boonying Siribumrungwong, M.D., PhD.

Introduction



Endothermal ablation vs. Open surgery

Review

A Systematic Review and Meta-analysis of Randomised Controlled Trials Comparing Endovenous Ablation and Surgical Intervention in Patients with Varicose Vein **CME**

B. Siribumrungwong^{a,b}, P. Noorit^c, C. Wilasrusmee^d, J. Attia^e, A. Thakkinstian^{a,*}

^a Section for Clinical Epidemiology and Biostatistics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Rama VI Road, Rachatevi, Bangkok, 10400, Thailand

^b Department of Surgery, Faculty of Medicine, Thammasat University Hospital, Thammasat University (Rangsit Campus), Pathumtani, Thailand

^c Department of Surgery, Chonburi Hospital, Chonburi, Thailand

^d Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

^e Center for Clinical Epidemiology and Biostatistics, The University of Newcastle, Newcastle, NSW, Australia

Endovenous procedure vs. Open surgery



โรงพยาบาลศิริราช
เฉลิมพระเกียรติ

- ✓ Similar efficacies
- ✓ Decrease postoperative pain, hematoma, wound infection
- ✓ Faster recovery
- ✓ Replace open surgery as new gold standard

Gloviczki et al. J Vasc Surg 2011

Non-thermal Non-tumescent: NTNT

Cyanoacrylate closure : CAC

- Cyanoacrylate injection

Mechanochemical ablation : MOCA

- Simultaneously do both mechanical and chemical injury to the vein

No heat
Doesn't need tumescent
anesthesia

Non-thermal Non-tumescent: NTNT



โรงพยาบาลธรรมศาสตร์
เฉลิมพระเกียรติ

What's the evidence

More RCTs have been published



Open access

Protocol

BMJ Open Endovenous ablation and surgery in great saphenous vein reflux: a systematic review and network meta-analysis of randomised controlled trials protocol

Boonying Siribumrungwong,^{1,2} Kanoklada Srikuea,¹ Saritphat Orrapin,¹
Thoetphum Benyakorn,¹ Kittipan Rerkasem,³ Ammarin Thakkinstian⁴



โรงพยาบาลธรรมศาสตร์
เฉลิมพระเกียรติ

Pubmed
377 RCTs

Scopus
930 RCTs

Discard duplication
Nonrelevant study
Non-English
No outcome of interest
Not interested intervention

36 RCTs
44 publications

EVLA vs Surgery
10 RCTs

RFA vs Surgery
7 RCTs

UGFS vs Surgery
8 RCTs

EVLA vs RFA
8 RCTs

RFA vs MOCA
2 RCTs

RFA vs CAC
1 RCT

EVLA vs CAC
1 RCT

EVLA vs UGFS
2 RCTs

EVLA vs RFA
vs MOCA
1 RCT

EVLA vs RFA
vs CAC
1 RCT

EVLA vs UGFS
vs Surgery
3 RCTs

EVLA vs RFA vs
UGFS vs Surgery
1 RCT

EVLA vs
EVLA+HL
1 RCT

NTNT vs. endothermal

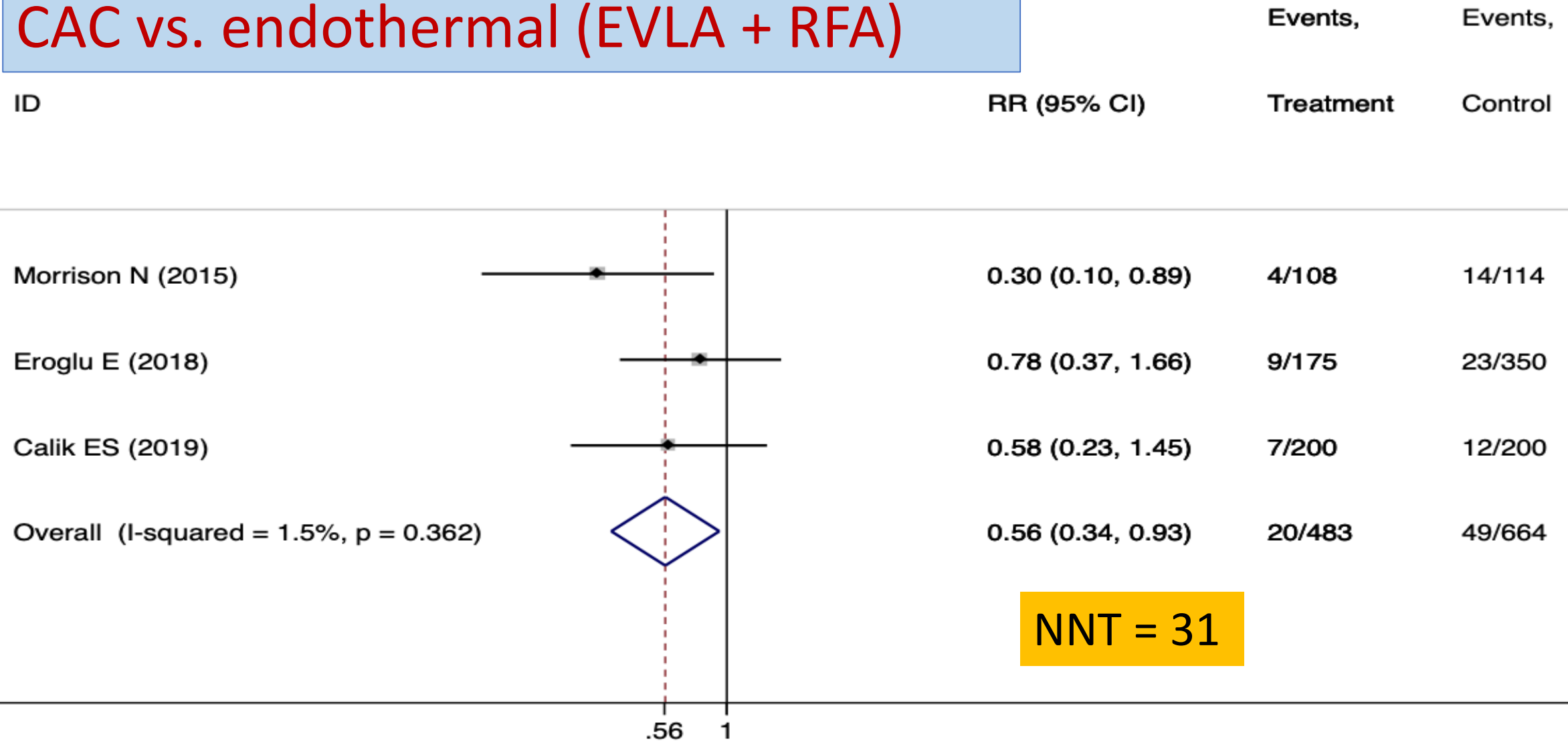


โรงพยาบาลธรรมศาสตร์
เฉลิมพระเกียรติ

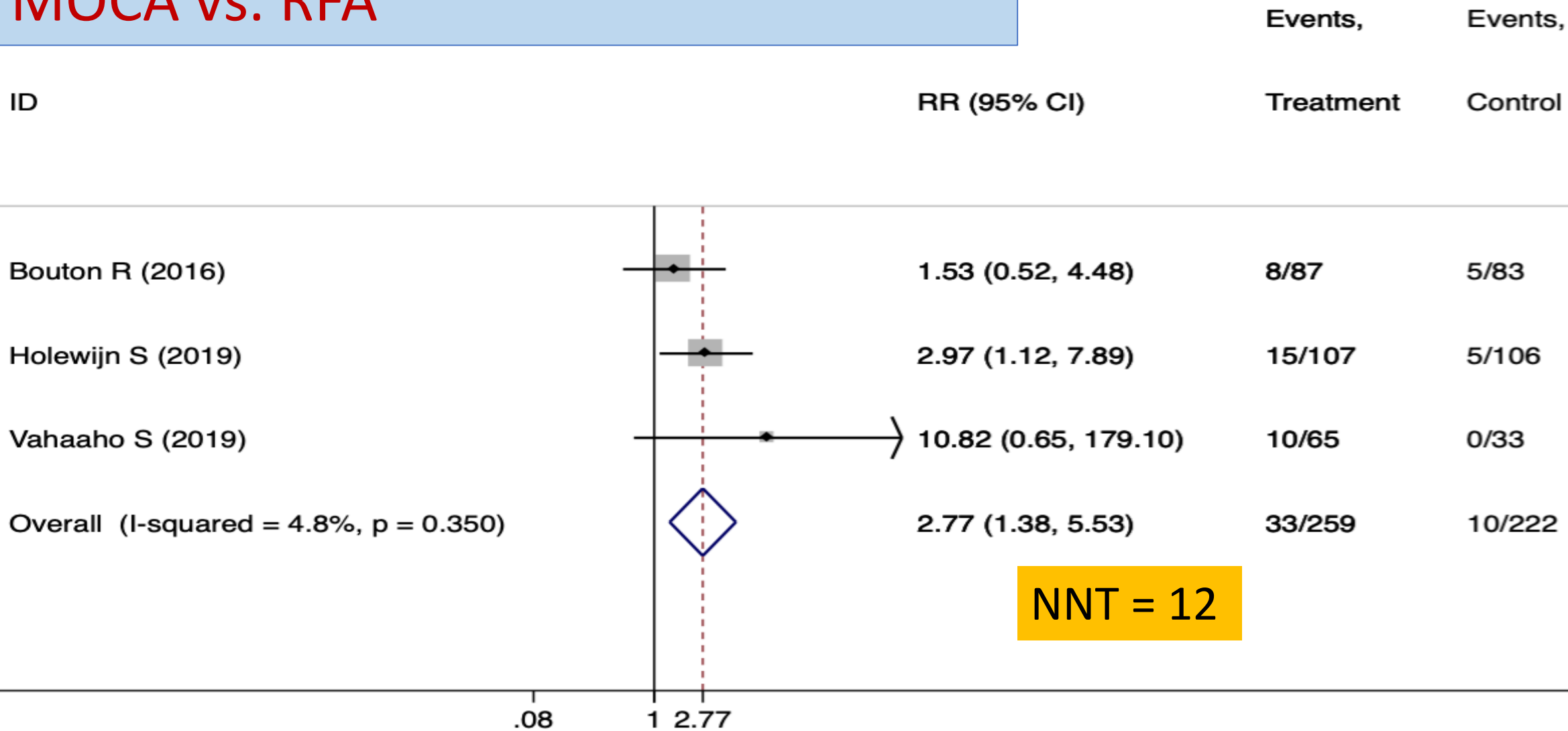
Outcomes

- ✓ Efficacies – non-occlusion of GSV
- ✓ Postoperative complications and recovery
- ✓ Quality of life
- ✓ According to time frame of follow up (peri-procedure (<30 d), ≤ 1 year, 1-3 years, and > 3 years)

GSV non-occlusion at 1 year follow up CAC vs. endothermal (EVLA + RFA)



GSV non-occlusion at 1 year follow up MOCA vs. RFA



Postoperative complications

Outcomes	Studies	Intervention	Events (%)	RR (95%CI)
Thromboembolism	4	NTNT Endothermal	1/570 (0.002) 4/747 (0.005)	0.58 (0.12, 2.81)
Wound infection	3	NTNT Endothermal	2/280 (0.007) 3/287 (0.010)	0.84 (0.15, 4.69)
Paresthesia	4	NTNT Endothermal	10/480 (0.02) 39/487 (0.08)	0.29 (0.15, 0.58)
Superficial thrombophlebitis	5	NTNT Endothermal	55/677 (0.08) 72/853 (0.08)	0.98 (0.62, 1.55)

Postoperative pain and recovery



Outcomes	Studies	Intervention	No. of patients	MD (95%CI)
Maximal postoperative pain	4	NTNT	569	-1.33 (-2.01, -0.65)
		Endothermal	739	
Return to normal activities, day	3	NTNT	394	-0.93 (-1.68, -0.19)
		Endothermal	389	
Return to work, day	3	NTNT	369	-0.46 (-0.85, -0.07)
		Endothermal	539	

Conclusion



Efficacies (GSV occlusion) at 1 year

- CAC had significantly less GSV occlusion than endothermal ablation (RR 0.56 (95%CI: 0.34, 0.93; NNT= 31) with low heterogeneity
- MOCA had higher GSV occlusion than RFA (RR 2.77 (95%CI: 1.38, 5.53; NNT= 12) with low heterogeneity
- NTNT had benefit of less paresthesia, maximal postoperative pain, and faster recovery than endothermal ablation



42nd Annual Scientific Congress of the Royal College of Surgeons of Thailand

July 2017
Presidential Dinner



Thank you