Ultrasound-Guided Internal Superior Laryngeal Nerve Block for Postoperative Sore Throat After Double-Lumen intubation.

A Systematic Review and Meta-Analysis

PRESENTER:

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BACKGROUND: Postoperative sore throat (POST) is among the most frequent complications of double-lumen endobronchial tube (DLT) intubation.

METHODS

1. We systematically searched for randomized controlled trials comparing ultrasound-guided internal branch superior laryngeal nerve block (iSLNB) with no block for the prevention of postoperative sore throat after DLT intubation, following the PRISMA 2020 guidelines.
2. Risk ratios (RRs) with 95% confidence intervals (CIs) were pooled using a restricted maximum likelihood random-effects model. Heterogeneity was assessed using I^2. Statistical analyses were performed using Review Manager.

RESULTS

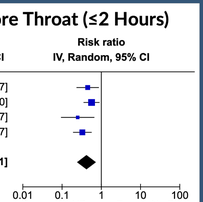
- Four randomized controlled trials including 405 patients were included.
- iSLNB significantly reduced the incidence of early and late POST.
- Significant reduction in severe early POST was found, with no significant differences in severe late POST, PONV, and postoperative dyspnea.
- Severe POST was infrequent, with only 16 events reported across the included studies (12 early and 4 late).
- **Available evidence was insufficient to adequately evaluate the safety of the block.**

Ultrasound-guided internal branch superior laryngeal nerve block **decreases** postoperative sore throat following double-lumen endobronchial intubation.

Figure 1. Effect of iSLNB on Early Postoperative Sore Throat (≤2 Hours)

Study or Subgroup	iSLNB Events	iSLNB Total	No Block Events	No Block Total	Weight	Risk ratio IV, Random, 95% CI
Chen 2023	9	41	20	41	22.0%	0.45 [0.23 , 0.87]
Chen 2025	16	48	26	44	37.4%	0.56 [0.35 , 0.90]
El-Desoky 2025	4	32	16	32	10.9%	0.25 [0.09 , 0.67]
Wang 2022	13	83	40	84	29.7%	0.33 [0.19 , 0.57]
Total (HKSJ[a])		**204**		**201**	**100.0%**	**0.42 [0.25 , 0.71]**
Total events:	42		102			

Test for overall effect: T = 5.31, df = 3 (P = 0.01)



Heterogeneity: Tau² (REML[b], 95% CI) = 0.02 [0.00 , 1.62]; Chi² = 3.39, df = 3 (P = 0.33); I² = 18%

Footnotes

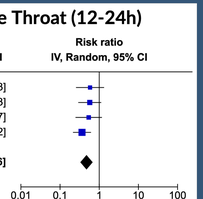
[a]CI calculated by Hartung-Knapp-Sidik-Jonkman method.

[b]Tau² calculated by Restricted Maximum-Likelihood method.

Figure 2. Effect of iSLNB on Late Postoperative Sore Throat (12-24h)

Study or Subgroup	iSLNB Events	iSLNB Total	No Block Events	No Block Total	Weight	Risk ratio IV, Random, 95% CI
Chen 2023	7	41	12	41	16.5%	0.58 [0.26 , 1.33]
Chen 2025	10	48	16	44	24.7%	0.57 [0.29 , 1.13]
El-Desoky 2025	7	32	13	32	18.7%	0.54 [0.25 , 1.17]
Wang 2022	14	83	39	84	40.1%	0.36 [0.21 , 0.62]
Total (Wald[a])		**204**		**201**	**100.0%**	**0.47 [0.34 , 0.66]**
Total events:	38		80			

Test for overall effect: Z = 4.37 (P < 0.0001)



Heterogeneity: Tau² (REML[b]) = 0.00; Chi² = 1.62, df = 3 (P = 0.66); I² = 0%

Footnotes

[a]CI calculated by Wald-type method.

[b]Tau² calculated by Restricted Maximum-Likelihood method.

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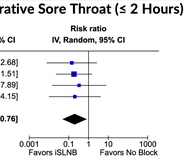
Table 1. Characteristics of Randomized Controlled Trials and Interventions

Author	Sample Size	DLT Sizes	Local Anesthetic	Timing of block
Chen 2023	82(iSLNB:41; No Block:41)	35-37	Ropivacaine 0.2% 2ml each side	At induction
Chen 2025	92(iSLNB:48; No Block:44)	35-37	Ropivacaine 0.2% 2ml + saline 1ml each side	Preoperative room
El-Desoky 2025	64(iSLNB:32; No Block:32)	35-39	Bupivacaine 0.5% 1.5ml + Lidocaine 2% 0.5ml each side	After surgery
Wang 2022	167(iSLNB:83; No Block:84)	32-37	Ropivacaine 0.25% 2ml each side	At induction

Figure 3. Effect of iSLNB on Severe Early Postoperative Sore Throat (≤ 2 Hours)

Study or Subgroup	iSLNB Events	iSLNB Total	No Block Events	No Block Total	Weight	Risk ratio IV, Random, 95% CI
Chen 2023	0	41	3	41	21.1%	0.14 [0.01 , 2.68]
Chen 2025	1	48	5	44	40.9%	0.18 [0.02 , 1.51]
El-Desoky 2025	0	32	1	32	18.1%	0.33 [0.01 , 7.89]
Wang 2022	0	83	2	84	19.9%	0.20 [0.01 , 4.15]
Total (Wald[a])		**204**		**201**	**100.0%**	**0.20 [0.05 , 0.76]**
Total events:	1		11			

Test for overall effect: Z = 2.36 (P = 0.02)



Heterogeneity: Tau² (REML[b]) = 0.00; Chi² = 0.16, df = 3 (P = 0.98); I² = 0%

Footnotes

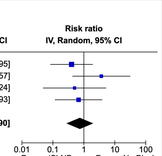
[a]CI calculated by Wald-type method.

[b]Tau² calculated by Restricted Maximum-Likelihood method.

Figure 4. Effect of iSLNB on Hoarseness

Study or Subgroup	iSLNB Events	iSLNB Total	No Block Events	No Block Total	Weight	Risk ratio IV, Random, 95% CI
Chen 2023	2	41	5	41	35.7%	0.40 [0.08 , 1.95]
Chen 2025	4	48	1	44	19.3%	3.67 [0.43 , 31.57]
El-Desoky 2025	1	32	2	32	16.2%	0.50 [0.05 , 5.24]
Wang 2022	2	83	3	84	28.8%	0.67 [0.12 , 3.93]
Total (Wald[a])		**204**		**201**	**100.0%**	**0.74 [0.29 , 1.90]**
Total events:	9		11			

Test for overall effect: Z = 0.63 (P = 0.53)



Heterogeneity: Tau² (REML[b]) = 0.00; Chi² = 2.82, df = 3 (P = 0.42); I² = 0%

Footnotes

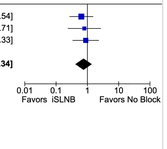
[a]CI calculated by Wald-type method.

[b]Tau² calculated by Restricted Maximum-Likelihood method.

Figure 5. Effect of iSLNB on PONV

Study or Subgroup	iSLNB Events	iSLNB Total	No Block Events	No Block Total	Weight	Risk ratio IV, Random, 95% CI
Chen 2025	7	48	10	44	42.9%	0.64 [0.27 , 1.54]
El-Desoky 2025	4	32	5	32	22.1%	0.80 [0.24 , 2.71]
Wang 2022	7	83	8	84	35.0%	0.89 [0.34 , 2.33]
Total (Wald[a])		**163**		**160**	**100.0%**	**0.75 [0.43 , 1.34]**
Total events:	18		23			

Test for overall effect: Z = 0.96 (P = 0.33)



Heterogeneity: Tau² (REML[b]) = 0.00; Chi² = 0.25, df = 2 (P = 0.88); I² = 0%

Footnotes

[a]CI calculated by Wald-type method.

[b]Tau² calculated by Restricted Maximum-Likelihood method.



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