Supplementary

Table S1 Distribution of missing data

	Per-protocol (n=103)		Intention-to-treat (n=110)		Results without imputation	
	BGF MDI	Control	BGF MDI	Control	BGF MDI	Control
Obvious cough ≥14 days	55	50	278	197	0	0
Obvious cough ≥30 days	55	50	278	197	0	0
Obvious cough ≥60 days	55	50	278	197	0	0
Cough ≥14 days	55	50	278	197	0	0
Cough ≥30 days	55	50	278	197	0	0
Cough ≥60 days	55	50	278	197	0	0
Cough severity at POD 1	0	0	0	0	0	0
Cough severity at POD 3	0	0	1	0	0	0
Cough severity at POD 7	0	0	0	3	0	0
Cough severity at POD 14	0	0	4	3	0	0
Cough severity at POD 30	0	0	4	3	0	0
Cough severity at POD 60	0	0	4	3	0	0
Oral candidiasis	0	0	0	0	0	0
Pneumonia	0	0	0	0	0	0
Insomnia	0	0	0	0	0	0
Palpitation	0	0	0	0	0	0
Dysphonia	0	0	0	0	0	0

BGF MDI, budesonide/glycopyrronium/formoterol co-suspension metered dose inhaler; POD, postoperative day.

Table S2 Sensitivity analysis on intention-to-treat

	Per-protocol (n=103)			Intention-to-treat (n=110)		
	BGF MDI (n=51)	Control (n=52)	P value	BGF MDI (n=55)	Control (n=55)	P value
Obvious cough ≥14 days	7 (13.7)	21 (40.4)	0.002	11 (20)	23 (41.8)	0.008
Obvious cough ≥30 days	3 (5.9)	11 (21.2)	0.024	3 (5.5)	11 (20)	0.017
Obvious cough ≥60 days	0	1 (1.9)	1	0	1 (1.8)	1
Cough ≥14 days	43 (84.3)	50 (96.2)	0.085	47 (85.5)	53 (96.4)	0.042
Cough ≥30 days	35 (67.3)	45 (86.5)	0.029	39 (70.9)	48 (87.3)	0.030
Cough ≥60 days	12 (23.5)	25 (48.1)	0.007	12 (21.8)	26 (47.3)	<0.001
Cough severity at POD 1	0 [0–5]	0 [0–10]	1	0 [0–7.5]	0 [0–10]	0.377
Cough severity at POD 3	4 [0–20]	20 [0–30]	<0.001	10 [0–20]	20 [0–30]	0.026
Cough severity at POD 7	20 [12–30]	20 [20–40]	0.061	20 [12–30]	30 [20–40]	<0.001
Cough severity at POD 14	28 [16–30]	40 [30–49.5]	0.018	28 [18–30]	40 [30–49]	<0.001
Cough severity at POD 30	20 [10–30]	30 [20–35]	0.061	20 [10–30]	30 [20–35]	<0.001
Cough severity at POD 60	2 [0–10]	10 [8–25]	0.015	1 [0–10]	10 [8–22.5]	<0.001
Oral candidiasis	0	0	1	0	0	1
Pneumonia	0	0	1	0	0	1
Insomnia	0	0	1	0	0	1
Palpitation	3 (5.9)	0	0.234	3 (5.5)	0	0.238
Dysphonia	0	0	1	0	0	1

BGF MDI, budesonide/glycopyrronium/formoterol co-suspension metered dose inhaler; POD, postoperative day.

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Table S3 Sensitivity analysis results without imputation

	Per-protocol (n=103)			Results without imputation		
	BGF MDI (n=51)	Control (n=52)	P value	BGF MDI	Control	P value
Obvious cough ≥14 days	7 (13.7)	21 (40.4)	0.002	n=51, 7 (13.7)	n=52, 21 (40.4)	0.002
Obvious cough ≥30 days	3 (5.9)	11 (21.2)	0.024	n=51, 3 (5.9)	n=52, 11 (21.2)	0.024
Obvious cough ≥60 days	0	1 (1.9)	1	n=30, 0	n=33, 1 (3)	1
Cough ≥14 days	43 (84.3)	50 (96.2)	0.085	n=51, 43 (84.3)	n=52, 50 (96.2)	0.09
Cough ≥30 days	35 (67.3)	45 (86.5)	0.029	n=51, 35 (67.3)	n=52, 45 (86.5)	0.029
Cough ≥60 days	12 (23.5)	25 (48.1)	0.007	n=30, 7 (23.3)	n=33, 16 (48.5)	0.033
Cough severity at POD 1	0 [0–5]	0 [0–10]	1	n=55, 0 [0,7.5]	n=55, 0 [0, 10]	0.376
Cough severity at POD 3	4 [0–20]	20 [0–30]	<0.001	n=54, 7.5 [0, 20]	n=55, 20 [0, 30]	0.015
Cough severity at POD 7	20 [12–30]	20 [20–40]	0.061	n=51, 20 [23, 30]	n=55, 30 [20, 40]	<0.001
Cough severity at POD 14	28 [16–30]	40 [30–49.5]	0.018	n=51, 28 [16–30]	n=52, 40 [30–49.5]	0.018
Cough severity at POD 30	20 [10–30]	30 [20–35]	0.061	n=51, 20 [10–30]	n=52, 30 [20–35]	0.061
Cough severity at POD 60	2 [0–10]	10 [8–25]	0015	n=51, 2 [0–10]	n=52, 10 [8–25]	0.015
Oral candidiasis	0	0	1	0	0	1
Pneumonia	0	0	1	0	0	1
Insomnia	0	0	1	0	0	1
Palpitation	3 (5.9)	0	0.234	3 (5.9)	0	0.234
Dysphonia	0	0	1	0	0	1

BGF MDI, budesonide/glycopyrronium/formoterol co-suspension metered dose inhaler; POD, postoperative day.

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