Supplementary Online Content

Liu S-D, Chen W-T, Chi C-C. Association between medication use and bullous pemphigoid: a systematic review and meta-analysis. *JAMA Dermatol*. Published online June 17, 2020. doi:10.1001/jamadermatol.2020.1587

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This supplementary material has been provided by the authors to give readers additional information about their work.

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eTable 1. PubMed, Cochrane Central Register of Controlled Trials, and Embase Databases Search Strategy

PubMed
1 "bullous pemphigoid"[All Fields]
2 bullous pemphigoid[MeSH Terms]
3 #1 OR #2
4 "drug-related side effects and adverse reactions"[MeSH Terms]
5 "adverse drug reaction"
6 #4 OR #5
7 drug related
8 drug induced
9 drug triggered
#10 drug precipitated
#11 drug associated
#12 drug provoked
#13 drug linked
#14 #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13
#15 medication[MeSH Terms]
#16 medication
#17 #15 OR #16
#18 #6 OR #14 OR #17
#19 #3 AND #18
Cochrane Central Register of Controlled Trials
#1 MeSH descriptor: [Pemphigoid, Bullous] explode all trees
#2 bullous pemphigoid
#3 #1 OR #2
#4 drug
#5 MeSH descriptor: [Pharmaceutical Preparations] explode all trees
#6 Medication
#7 #4 OR #5 OR #6
#8 #7 AND #3
Embase
1 bullous AND ('pemphigoid'/exp OR pemphigoid)
2 'adverse drug reaction'
3 'drug related'
4 'drug induced'

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# 5	'drug triggered'
# 6	'drug precipitated'
# 7	'drug associated'
# 8	'drug provoked'
# 9	'drug linked'
#10	#2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9
#11	#1 AND #10

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eTable 2. Characteristics of Included Studies for the Class of Diuretics

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for			
			Aldosterone antagonists	Thiazide	Loop	Any
Bastuji-Garin, 1996,[40] France	Case-control	116/216	15/10; 3.1 (1.4-7.1)	22/26; 1.3 (0.6-2.7)	17/27	42/53; 1.8 (1.1-2.9)
Bastuji-Garin, 2011,[33] France	Case-control	201/345	26/26; 1.90 (1.06–3.40)	20/42; 0.81 (0.46–1.44)	1.21 (0.79–1.84)	73/111; 1.22 (0.84–1.76)
Benzaquen, 2018,[41] France	Case-control	61/122	NA	NA	NA	28/69
Lee, 2019,[15] Korea	Case-control	670/670	63/42	145/124	160/136	NA
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	3/5	16/23	20/15; 3.8 (1.5–9.7)	36/39
Nozu, 2010,[42] Japan	Case-control	5/31	0/6	NA	NA	NA
Tan, 2017,[45] Singapore	Case-control	105/315	NA	4/6	2/18	NA

Abbreviation: NA, not available.

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eTable 3. Characteristics of Included Studies for the Class of Antidiabetic Drugs

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for					
			Dipeptidyl peptidase 4 inhibitors	Metformin	Sulfonylurea	Thiazolidinediones	Glucagon-like peptide 1 analogues	Any
Bastuji-Garin, 1996,[40] France	Case-control	116/216	NA	NA	NA	NA	NA	3/9
Benzaquen, 2018,[41] France	Case-control	61/122	22/28; 2.64 (1.19-5.85)	NA	NA	NA	NA	NA
Kridin, 2018,[22] Israel	Case-control	82/328	36/71; 3.16 (1.86-5.37)	51/218; 0.83 (0.51-1.38)	NA	NA	NA	NA
Lee, 2019,[15] Korea	Case-control	670/670	260/188; 1.58 (1.25-2.00)	NA	NA	NA	NA	NA
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	NA	NA	NA	NA	NA	9/6; 2.0 (0.3-13.5)
Plaquevent, 2019,[43] France	Case-control	1,787/225,400	108/8729	NA	NA	NA	NA	NA
Rosenstock, 2018,[50] USA	RCT	3494/3485*	7/0	NA	NA	NA	NA	NA

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Schaffer, 2017,[44] Switzerland	Case-control	23/170	9/57; 2.48 (0.75–8.3)	NA	NA	NA	NA	NA
Tan, 2017,[45] Singapore	Case-control	105/315	NA	1/10	2/11	NA	NA	NA
Varpuluoma, 2018,[46, 47] Finland	Case-control	3397/12941	124/153; 2.19 (1.55-3.11)	432/1178; 1.05 (0.88-1.24)	231/620; 0.99 (0.79-1.25)	28/59; 1.16 (0.63-2.12)	1/4	NA

Abbreviation: NA, not available.

* linagliptin 5mg per day versus placebo per day

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eTable 4. Characteristics of Included Studies for The Class of Psycholeptics

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for			
			Antipsychotics (N05A)	Anxiolytics (N05B)	Hypnotics and sedatives (N05C)	Any
Bastuji-Garin, 1996,[40] France	Case-control	116/216	18/18; 1.9 (0.95-3.8)	36/80	NA	NA
Bastuji-Garin, 2011,[33] France	Case-control	201/345	24/29; 1.6 (0.89-2.75)	50/72; 1.40 (0.88-2.0)	30/44; 1.16 (0.70-1.92)	106/119; 2.11 (1.46-3.04)
Benzaquen, 2018,[41] France	Case-control	61/122	26/46	NA	NA	NA
Lee, 2019,[15] Korea	Case-control	670/670	NA	NA	NA	173/122
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	6/1	7/3; 2.8 (0.6-13.1)*	NA	NA
Nozu, 2010,[42] Japan	Case-control	5/31	1/1	NA	NA	NA
Tan, 2017,[45] Singapore	Case-control	105/315	NA	NA	1/0	NA

Abbreviation: NA, not available.

* Benzodiazepine derivatives.

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eTable 5. Characteristics of Included Studies for the Class of Anti-Parkinson Drugs

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for		
			Anticholinergic drugs	Dopaminergic drugs	Any
Bastuji-Garin, 2011,[33] France	Case-control	201/345	2/0	19/15; 2.28 (1.12-4.65)	21/15; 2.54 (1.26-5.12)
Lee, 2019,[15] Korea	Case-control	670/670	NA	NA	54/46
Lloyd-Lavery,[21] 2013, UK	Case-control	86/134	NA	NA	5/4
Tan, 2017,[45] Singapore	Case-control	105/315	NA	2/2	NA
Varpuluoma, 2019,[48] Finland	Case-control	3397/12,941	16/24; 2.94 (1.42-6.09)	110/196; 1.85 (1.10-3.12)	NA

Abbreviation: NA, not available.

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eTable 6. Characteristics of Included Studies for the Class of Analgesics

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for		
			Opioids	Salicylates	Any
Bastuji-Garin, 1996,[40] France	Case-control	116/216	NA	NA	29/59
Bastuji-Garin, 2011,[33] France	Case-control	201/345	19/57; 0.5 (0.29-0.88)	19/52; 0.55 (0.31-0.97)	34/102; 0.48 (0.31-0.74)
Benzaquen, 2018,[41] France	Case-control	61/122	NA	NA	12/22

Abbreviation: NA, not available.

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eTable 7. Characteristics of Included Studies for the Class of Antihypertensives

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for							
			Angiotensin-converting-enzyme inhibitors	Angiotensin II receptor blockers	Alpha-blockers	Beta-blockers	Calcium channel blocker	Central	Vasodilators	Any
Bastuji-Garin, 1996,[40] France	Case-control	116/216	15/24	NA	NA	9/21	23/30	13/17	13/36	NA
Bastuji-Garin, 2011,[33] France	Case-control	201/345	57/113; 0.83 (0.56-1.21)	16/25; 1.12 (0.58-2.16)	NA	39/67; 1.03 (0.66-1.60)	40/81; 0.83 (0.54-1.27)	11/14; 1.42 (0.63-3.20)	37/70; 0.95 (0.58-1.12)	NA
Benzaquen, 2018,[41] France	Case-control	61/122	NA	NA	NA	NA	NA	NA	NA	47/101
Lee, 2019,[15] Korea	Case-control	670/670	358/323		NA	146/122	304/274	NA	NA	NA
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	34/50	NA	NA	21/21	15/22	NA	NA	54/74

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Tan, 2017,[45] Singapore	Case-control	105/315	4/7	1/6	2/6	4/18	3/18	NA	NA	NA

Abbreviation: NA, not available.

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eTable 8. Characteristics of Included Studies for the Class of Antithrombotics

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for				
			Aspirin	Warfarin	Clopidogrel	Dipyridamole	Any
Bastuji-Garin, 2011,[33] France	Case-control	201/345	19/52; 0.55 (0.31-0.97)	NA	NA	NA	NA
Benzaquen, 2018,[41] France	Case-control	61/122	NA	NA	NA	NA	45/85
Lee, 2019,[15] Korea	Case-control	670/670	NA	NA	NA	NA	404/371
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	38/34; 1.9 (0.9-3.8)	5/10	3/0	3/0	
Tan, 2017,[45] Singapore	Case-control	105/315	6/15	NA	NA	1/1	NA

Abbreviation: NA, not available.

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eTable 9. Characteristics of Included Studies for the Class of Lipid-Lowering Agents

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for		
			Statins	Fibrates	Any
Bastuji-Garin, 1996,[40] France	Case-control	116/216	NA	NA	3/12
Bastuji-Garin, 2011,[33] France	Case-control	201/345	23/57; 0.66 (0.39-1.12)	6/22; 0.45 (0.18-1.15)	NA
Benzaquen, 2018,[41] France	Case-control	61/122	31/71	NA	NA
Lee, 2019,[15] Korea	Case-control	670/670	359/362	NA	NA
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	25/30	NA	NA
Tan, 2017,[45] Singapore	Case-control	105/315	7/19	1/3	NA

Abbreviation: NA, not available.

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eTable 10. Characteristics of Included Studies for the Class of Antidepressants

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for				
			Tricyclic antidepressant	Selective serotonin reuptake inhibitor	Tetracyclic antidepressant.	Serotonin–norepinephrine reuptake inhibitor	Any
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	7/10	6/4	3/1	4/1	20/17; 3.3 (0.6-18.7)
Tan, 2017,[45] Singapore	Case-control	105/315	1/1	2/0	NA	NA	NA

Abbreviation: NA, not available.

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eTable 11. Characteristics of Included Studies for the Class of Nonsteroidal Anti-inflammatory Drugs

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for Nonsteroidal anti-inflammatory drugs
Bastuji-Garin, 1996,[40] France	Case-control	116/216	7/9
Bastuji-Garin, 2011,[33] France	Case-control	201/345	8/16; 0.84 (0.35-2.02)
Benzaquen, 2018,[41] France	Case-control	61/122	0/12
Lee, 2019,[15] Korea	Case-control	670/670	177/150

Abbreviation: NA, not available.

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eTable 12. Characteristics of Included Studies for the Class of Antibiotics

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for Antibiotics
Bastuji-Garin, 1996,[40] France	Case-control	116/216	4/7
Bastuji-Garin, 2011,[33] France	Case-control	201/345	17/20; 1.52 (0.77-2.98)
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	10/5; 3.4 (1.1-11.2)

Abbreviation: NA, not available.

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eTable 13. Characteristics of Included Studies for the Class of Gastrointestinal Tract Medications

First author, year, country	Study design	Case/Control group	Case/control numbers and odds ratio (95% confidence interval) for		
			Proton pump inhibitors	Histamine-2 receptor antagonists	Any
Benzaquen, 2018,[41] France	Case-control	61/122	28/59	NA	NA
Lloyd-Lavery, 2013,[21] UK	Case-control	86/134	13/20	4/2	NA
Tan, 2017,[45] Singapore	Case-control	105/315	7/16	3/9	NA

Abbreviation: NA, not available.

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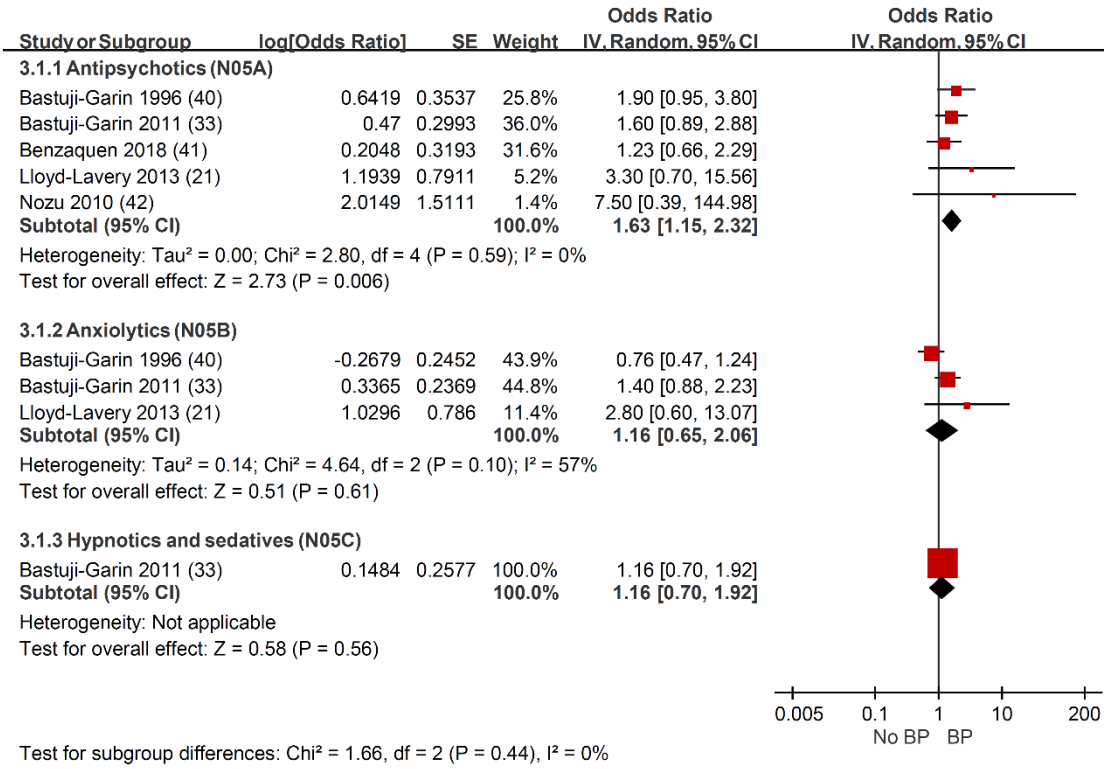
eFigure 1. Association Between Use of Psycholeptics and Bullous Pemphigoid



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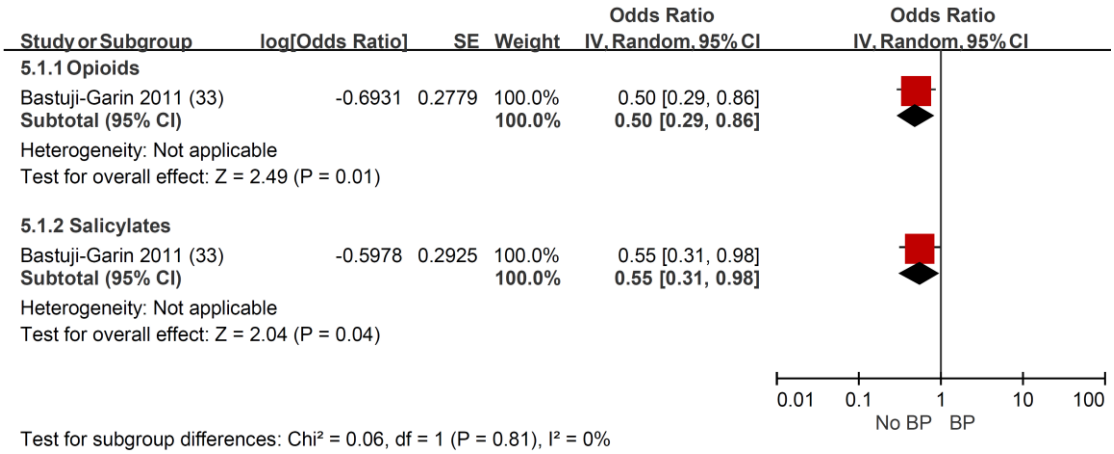
eFigure 2. Association Between Use of Analgesics and Bullous Pemphigoid



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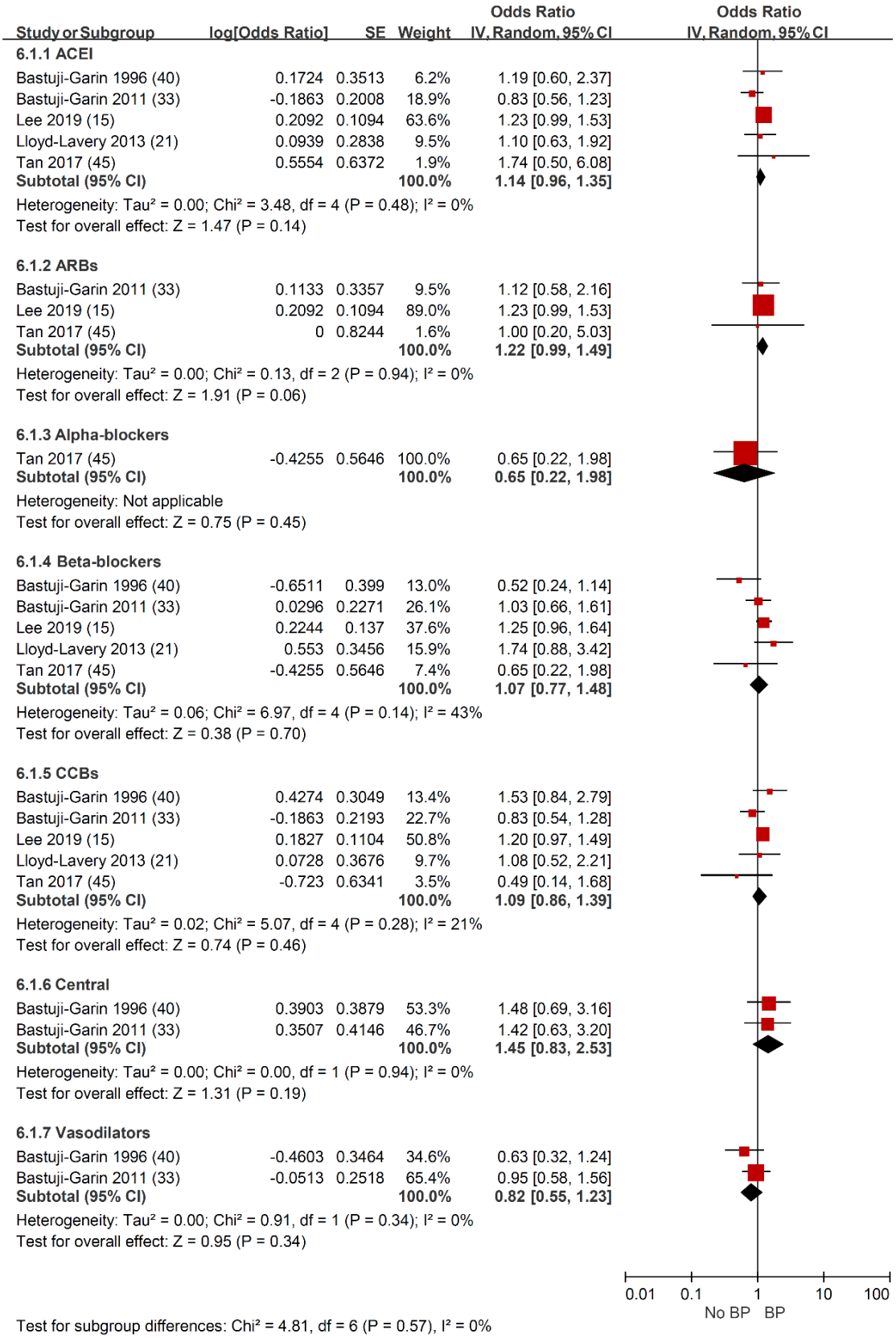
eFigure 3. Association Between Use of Antihypertensive Drugs and Bullous Pemphigoid. Abbreviation: ACEI, angiotensin-converting-enzyme inhibitors; ARB, angiotensin II receptor blockers; CCB, calcium channel blocker.



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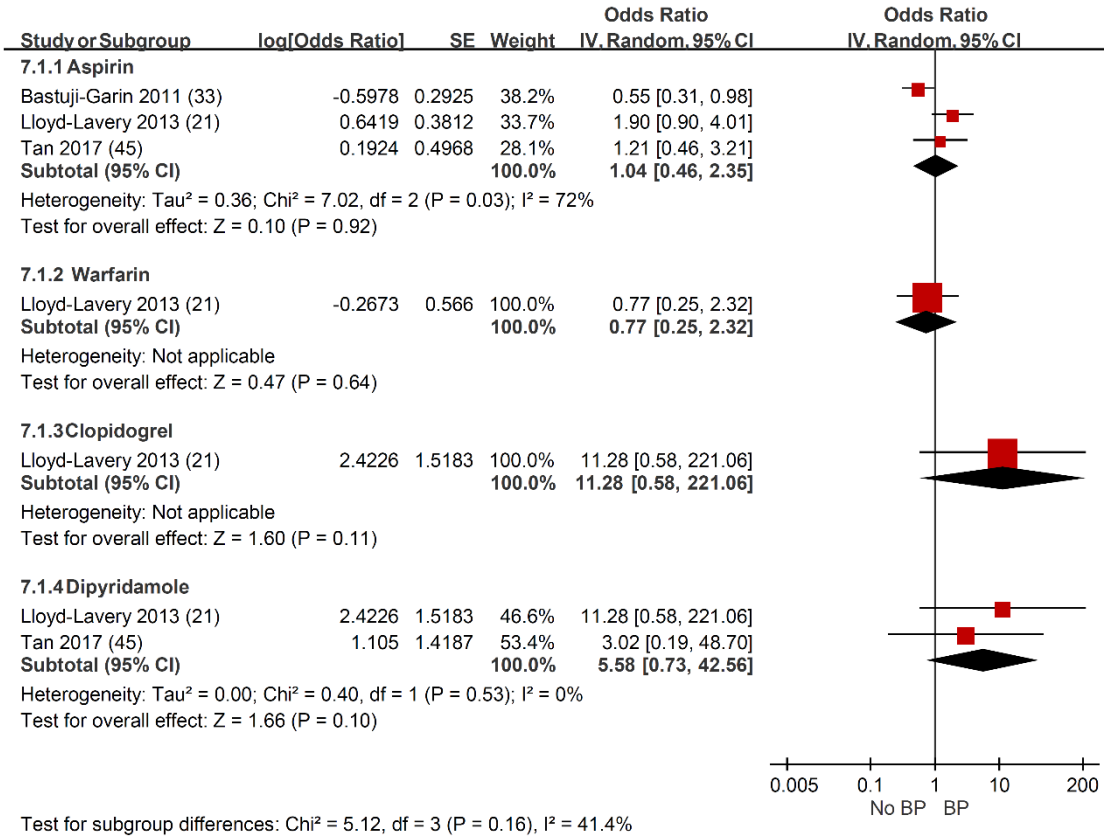
eFigure 4. Association Between Use of Antithrombotics and Bullous Pemphigoid



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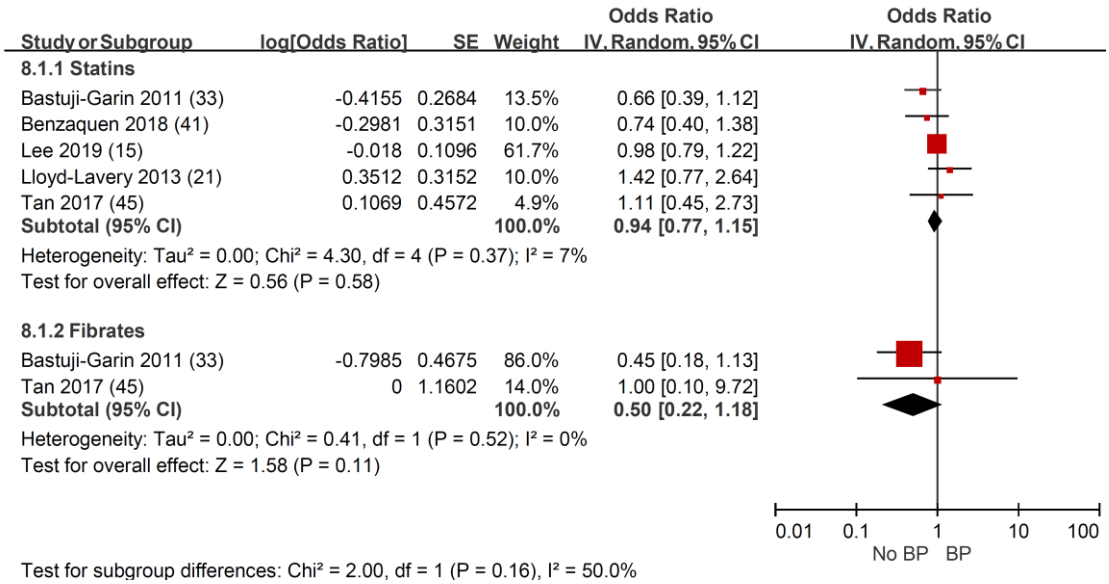
eFigure 5. Association Between Use of Lipid-Lowering Agents and Bullous Pemphigoid



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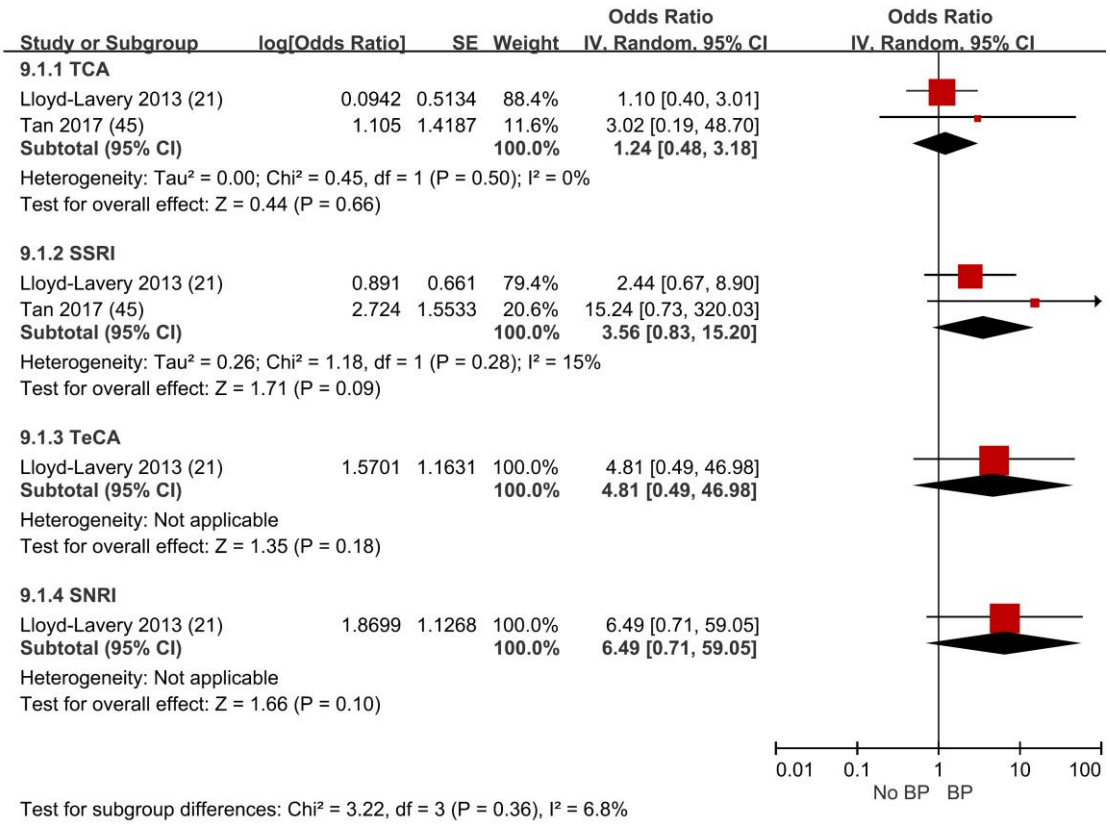
eFigure 6. Association Between Use of Antidepressants and Bullous Pemphigoid. Abbreviation: SNRI, serotonin–norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor; TCA, tricyclic antidepressant; TeCA, tetracyclic antidepressant.



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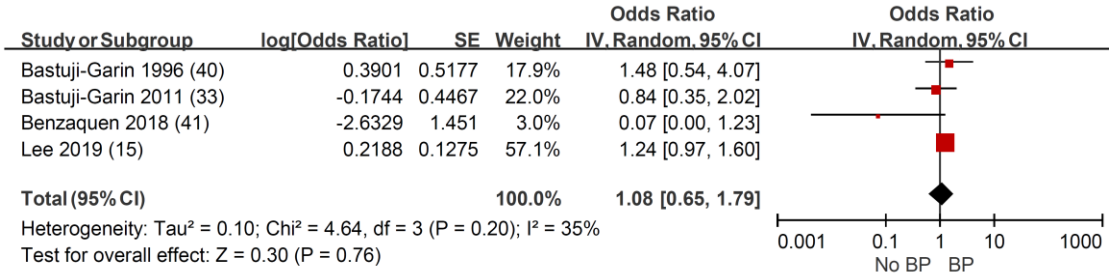
eFigure 7. Association Between Use of Nonsteroidal Anti-inflammatory Drugs and Bullous Pemphigoid



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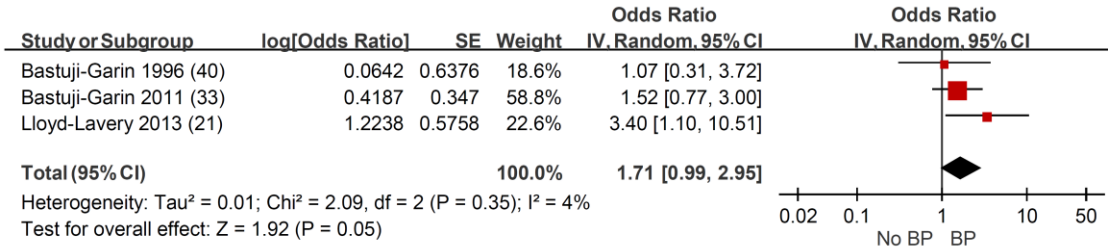
eFigure 8. Association Between Use of Antibiotics and Bullous Pemphigoid



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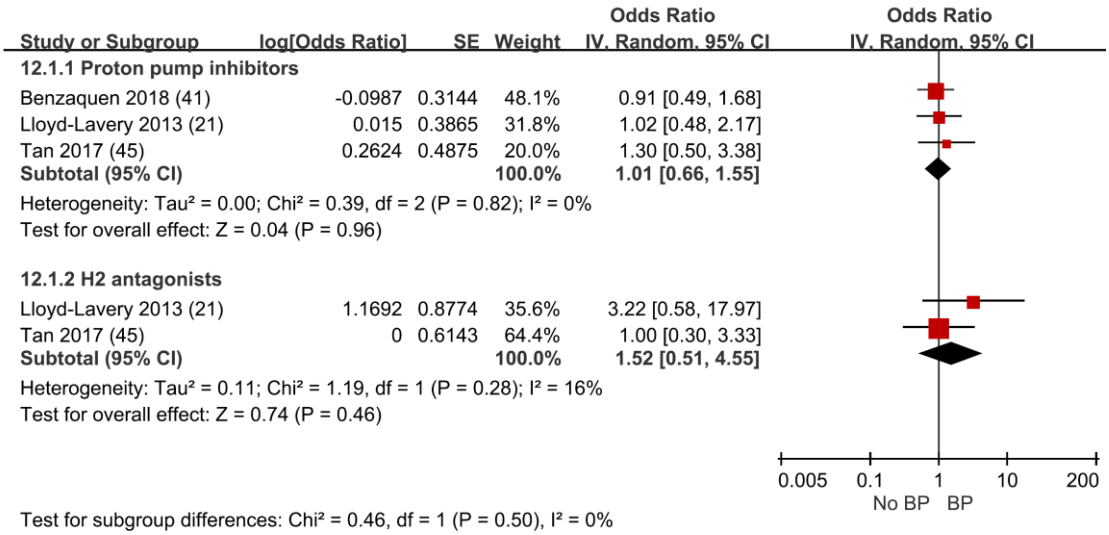
eFigure 9. Association Between Use of Gastrointestinal Tract Drugs and Bullous Pemphigoid



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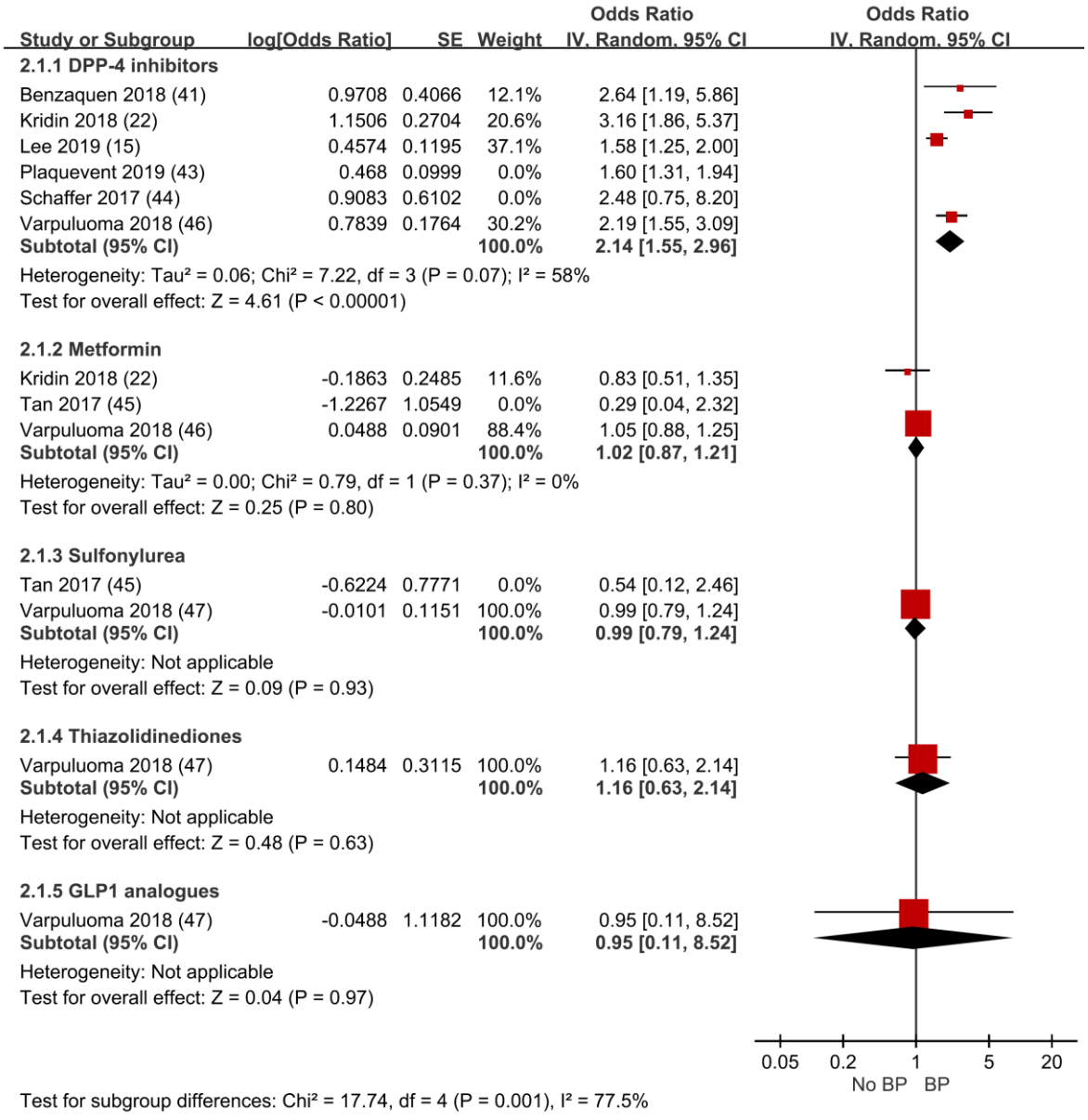
eFigure 10. Sensitivity Analysis on Association Between Antidiabetic Drugs and Bullous Pemphigoid



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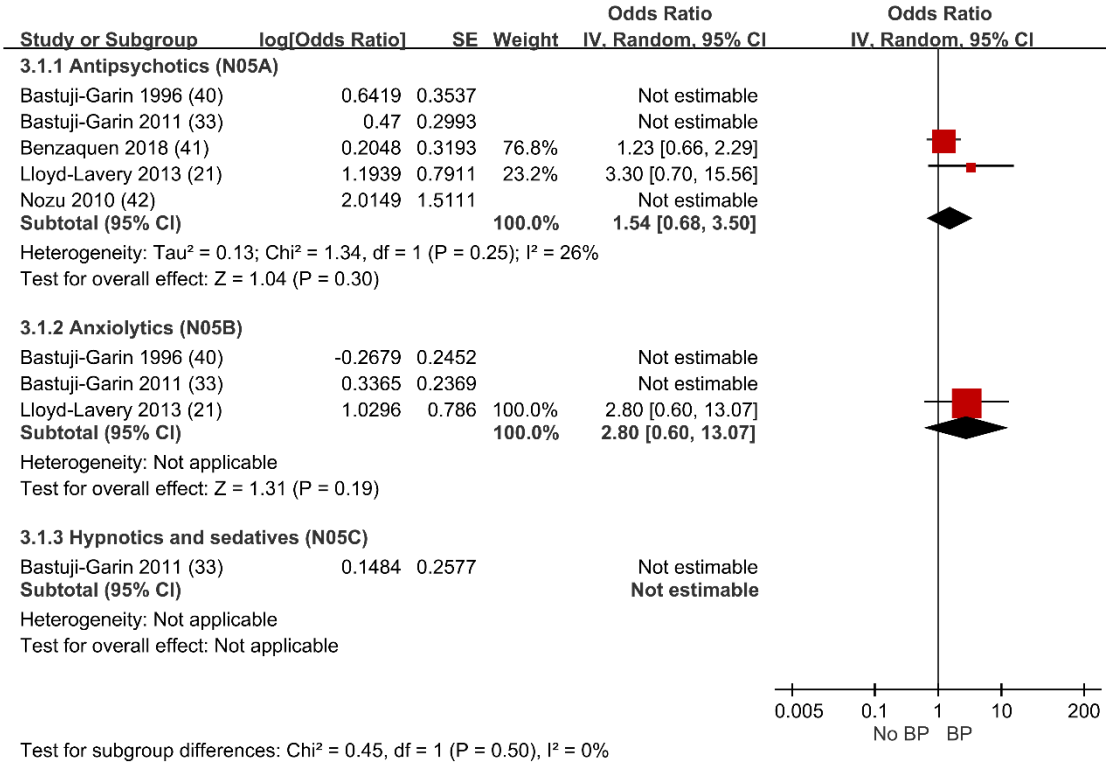
eFigure 11. Sensitivity Analysis on Association Between Psycholeptics and Bullous Pemphigoid



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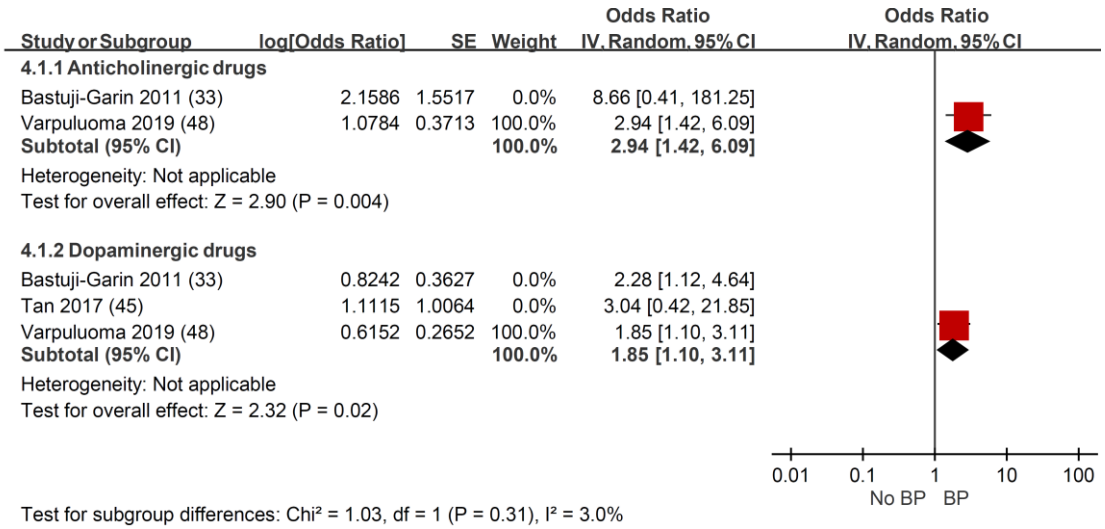
eFigure 12. Sensitivity Analysis on Association Between Anti-Parkinson Drugs and Bullous Pemphigoid



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