

## Online Supplementary 1

### Search Strategy in MEDLINE, EMBASE, and Cochrane databases from inception through October 2018

#1 'proton pump inhibitor'/exp

#2 ppi OR ppis

#3 'lansoprazole'/exp OR 'omeprazole'/exp OR 'pantoprazole'/exp OR 'esomeprazole'/exp OR 'dexlansoprazole'/exp OR 'rabeprazole'/exp OR 'dexrabeprazole'/exp

#4 'kapidex'/exp OR 'prevacid'/exp OR 'nexium'/exp OR 'prilosec'/exp OR 'protonix'/exp OR 'aciphex'/exp

#5 #1 OR #2 OR #3 OR #4

#6 'transplantation'/exp OR transplant\*

#7 'kidney'/exp OR renal

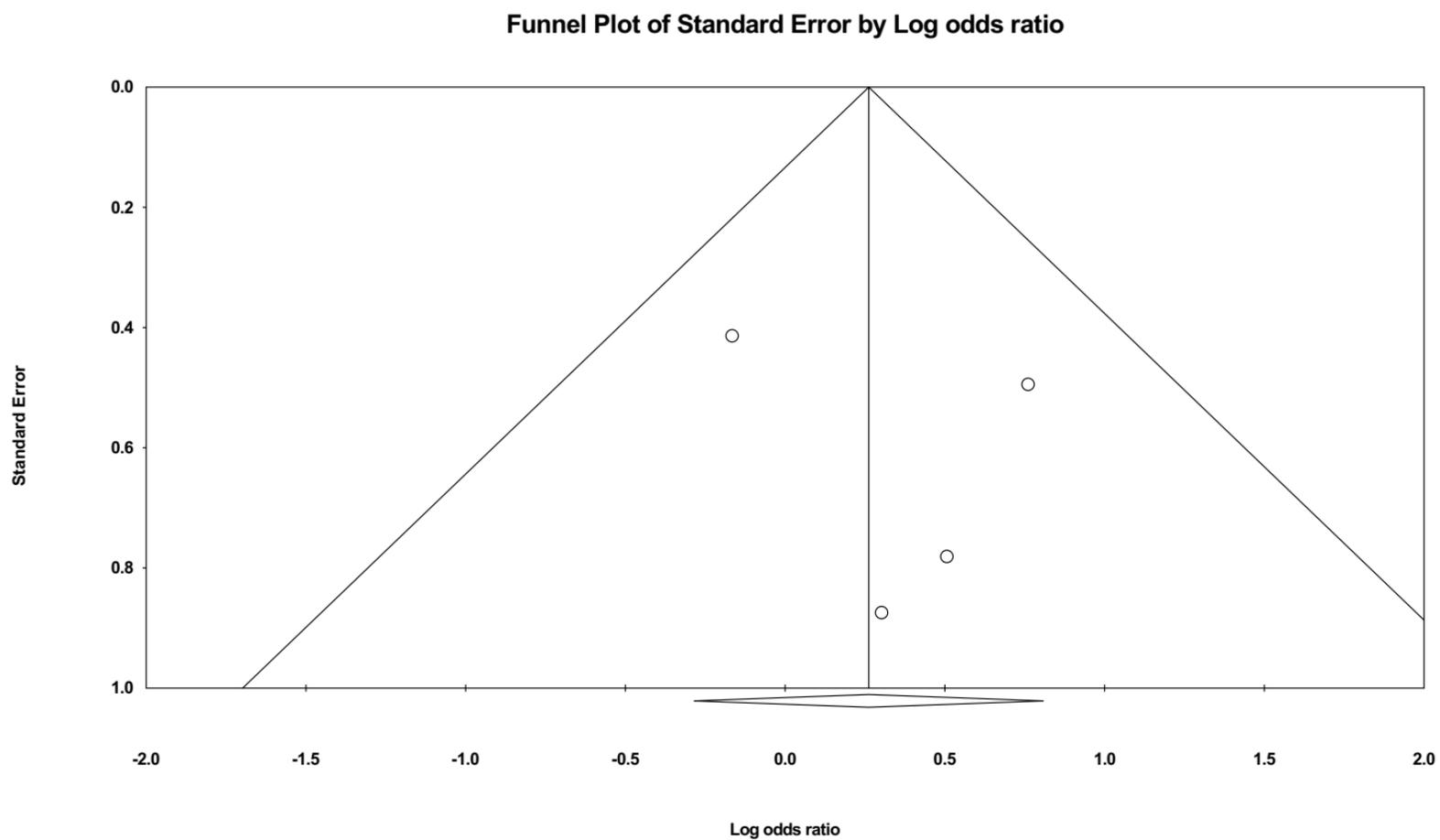
#8 'kidney graft'/exp OR 'renal graft'/exp

#9 'kidney transplantation'/exp OR 'kidney transplant\*' OR 'renal transplant\*'

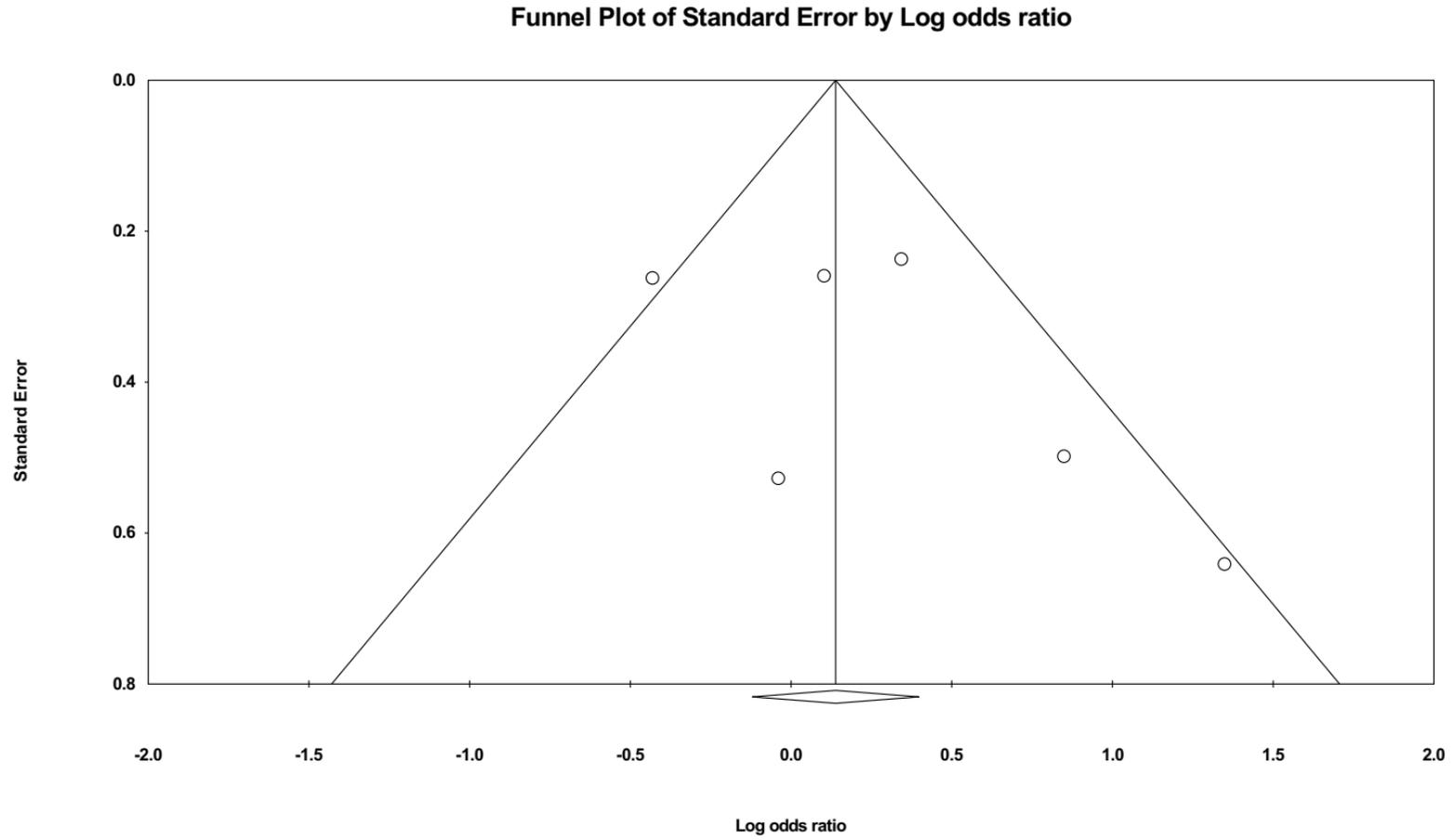
#10 #6 OR #7 OR #8 OR #9

#11 #5 AND #10

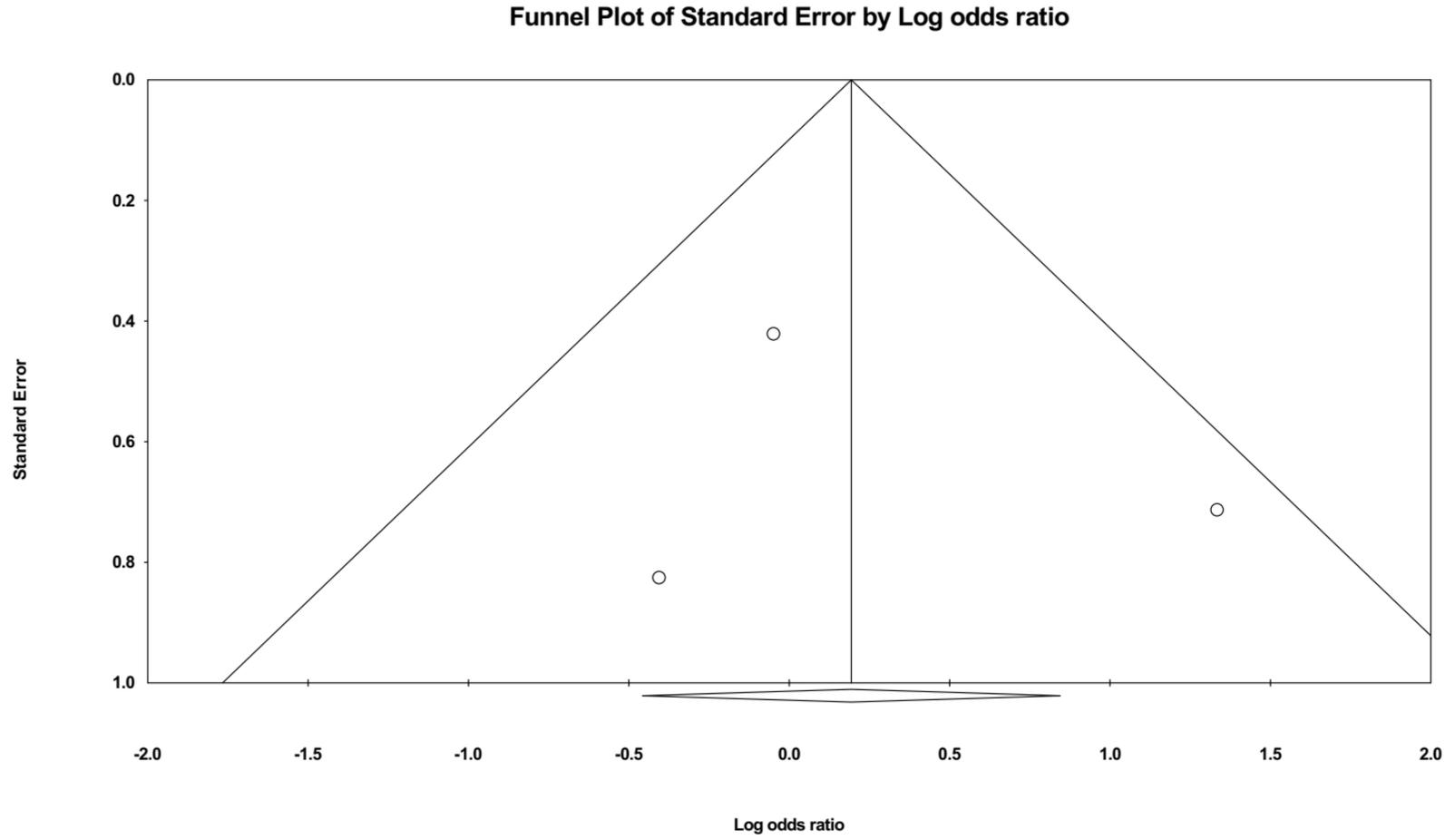
**Figure S1** Funnel plot assessing the publication bias of risk of allograft loss among kidney transplant patients with PPIs.



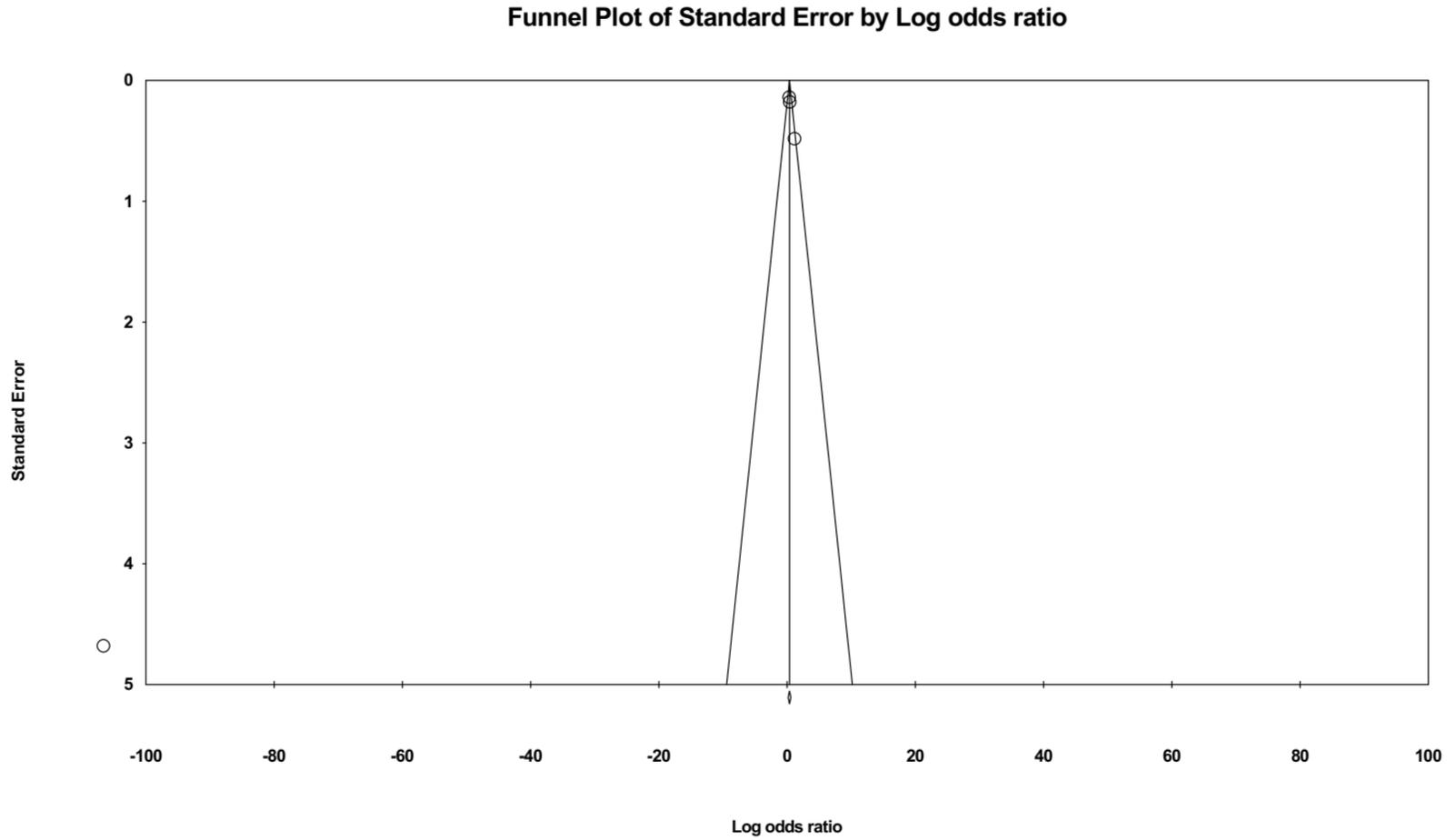
**Figure S2** Funnel plot assessing the publication bias of risk of acute rejection among kidney transplant patients with PPIs.



**Figure S3** Funnel plot assessing the publication bias of risk of mortality among kidney transplant patients with PPIs.



**Figure S4** Funnel plot assessing the publication bias of risk of hypomagnesemia among kidney transplant patients with PPIs.



**Table S1 Definitions of biopsy-proven acute rejection and presumed rejection across included studies**

| Study  | Definition of biopsy-proven acute rejection   | Definition of presumed rejection  | Protocol Biopsy          |
|--|---|---|--------------------------|
| <b>Patel <i>et al</i><sup>[32]</sup> 2012</b>      | NR  | NR  | NR                       |
| <b>Knorr <i>et al</i><sup>[20]</sup> 2014</b>      | All acute cellular or antibody-mediated rejections grade Banff I or higher as well as borderline rejections that were treated.  | NR  | No                       |
| <b>Van Boekel <i>et al</i><sup>[22]</sup> 2014</b> | Histological examination and classification were done according to the Banff criteria.  | Presumed acute rejection diagnosed based on an increase in serum creatinine without another explanation and a biopsy was not performed. | No                       |
| <b>Courson <i>et al</i><sup>[21]</sup> 2014</b>    | NR  | NR  | NR                       |
| <b>Patel <i>et al</i><sup>[23]</sup> 2017</b>      | BPAR included rejections diagnosed on per protocol or clinically indicated biopsies that were Banff criteria grade I or higher. | Suspected rejections included borderline/subclinical rejections per Banff criteria or clinically diagnosed rejections without biopsy.   | Yes<br>(3-6 mo and 1 yr) |
| <b>Rouse <i>et al</i><sup>[24]</sup> 2017</b>      | NR  | NR  | NR                       |
| <b>Uludag <i>et al</i><sup>[37]</sup> 2017</b>     | NR  | NR  | NR                       |

Abbreviations: NR: not reported; NS: not significant; eGFR: estimated glomerular filtration rate; BPAR: biopsy-proven acute rejection