Significance of Basiliximab Induction Therapy in Standard-Risk Renal Transplant in Tacrolimus Era: A Meta-Analysis

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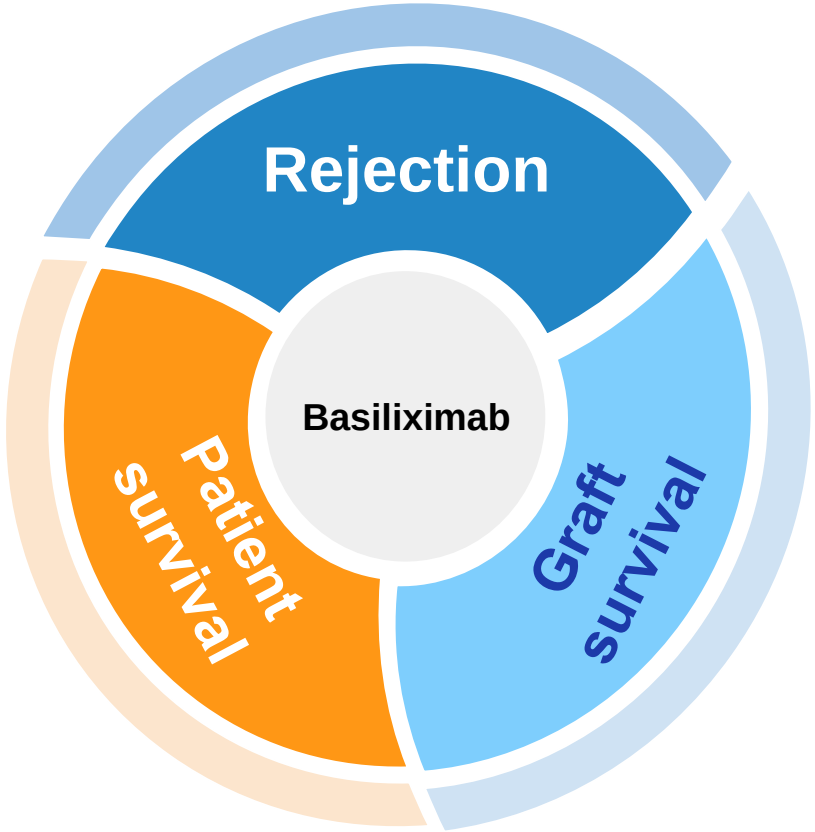
Basiliximab and transplant outcome

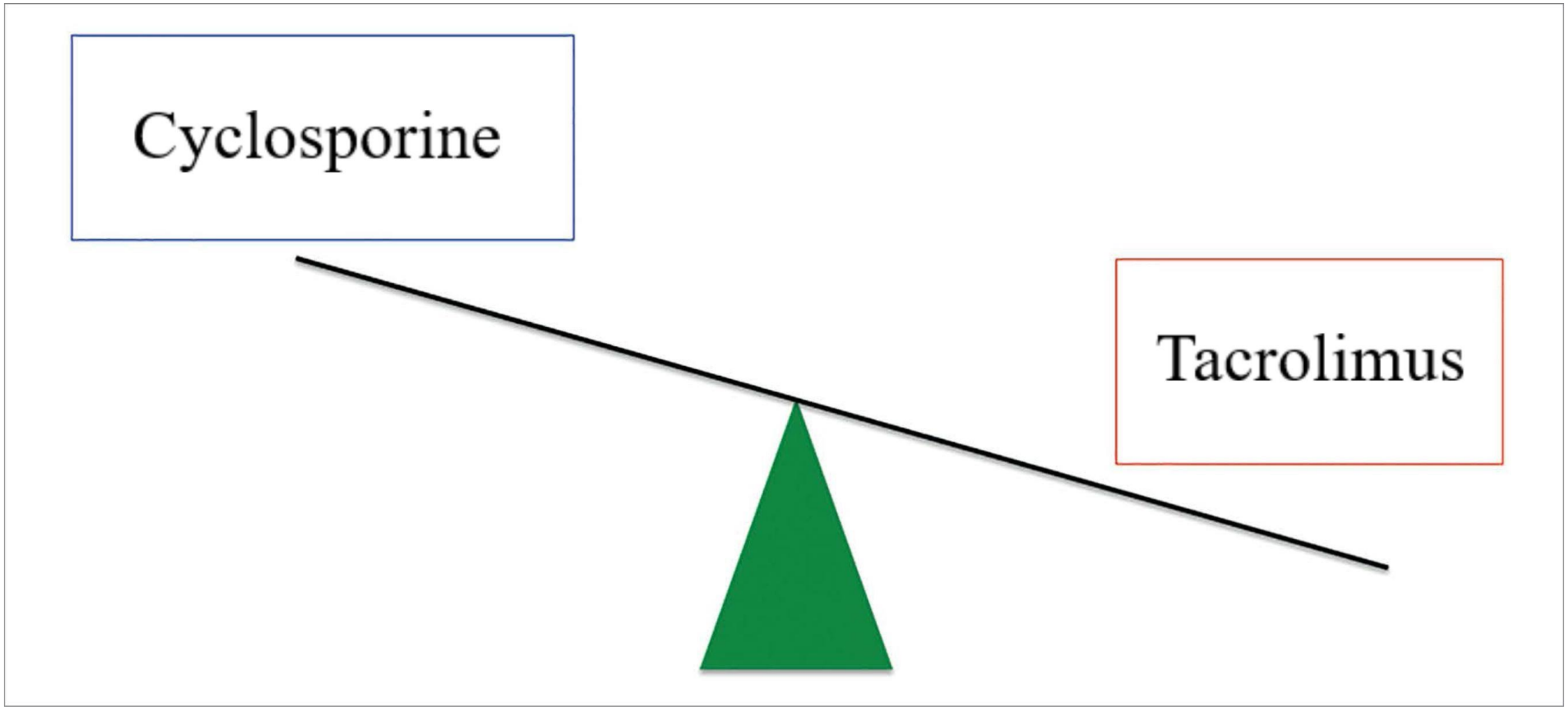
- Acute rejection impairs graft survival
- Immunosuppressive protocols have been designed to overcome this challenge
- Basiliximab has been authorized as induction therapy since 2000



KDIGO Guidelines

1.2: We recommend including induction therapy with a biologic agent as part of the initial immunosuppressive regimen in KTRs. (1A)

1.2.1: We recommend that an IL2-RA be the first-line induction therapy. (1B)


Cyclosporine
Tacrolimus

Methodology

- **We conducted a systematic review in PubMed, Medline, Embase and Cochrane databases to identify studies and research work that assessed effect of basiliximab on renal transplant outcomes.**

- **Standard risk for renal transplant was defined as:**

  - **Less than 2 DR mismatch**
  - **Panel reactive antibody (PRA) less than 20%**
  - **Recipients with no more than one previous transplant**

Inclusion criteria	Exclusion criteria
• Studies that compared basiliximab to placebo or no induction therapies • Standard risk population • English language papers	• Level 3-5 of evidence • Studies that compared basiliximab to other depleting or non-depleting antibodies induction therapies • Cyclosporine-based immunotherapy • High risk renal transplant recipients • Follow-up period less than 1 year • Studies performed on animals • Dual organ transplant • Organ transplant other than the kidneys

Total of 470 papers from different databases

Excluded 81 repetitions

389 papers

379 excluded:

- 271 unrelated
- 34 basiliximab versus ATG
- 26 Cyclosporine in he CNI
- 26 review articles
- 6 basilximab vs. daclizumab

10 papers

3 papers excluded for short follow-up

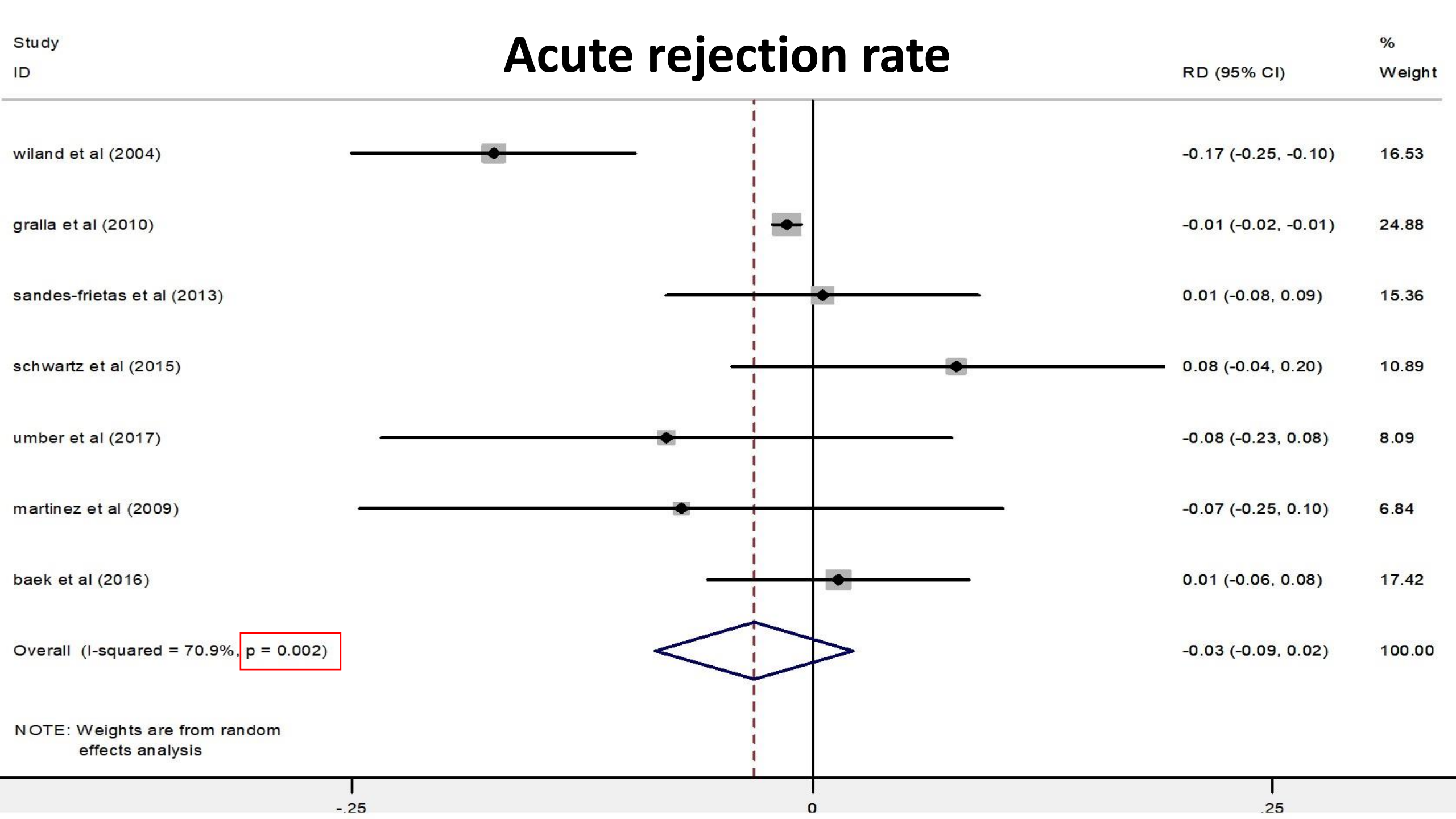
7 papers included for Meta-analysis

Results

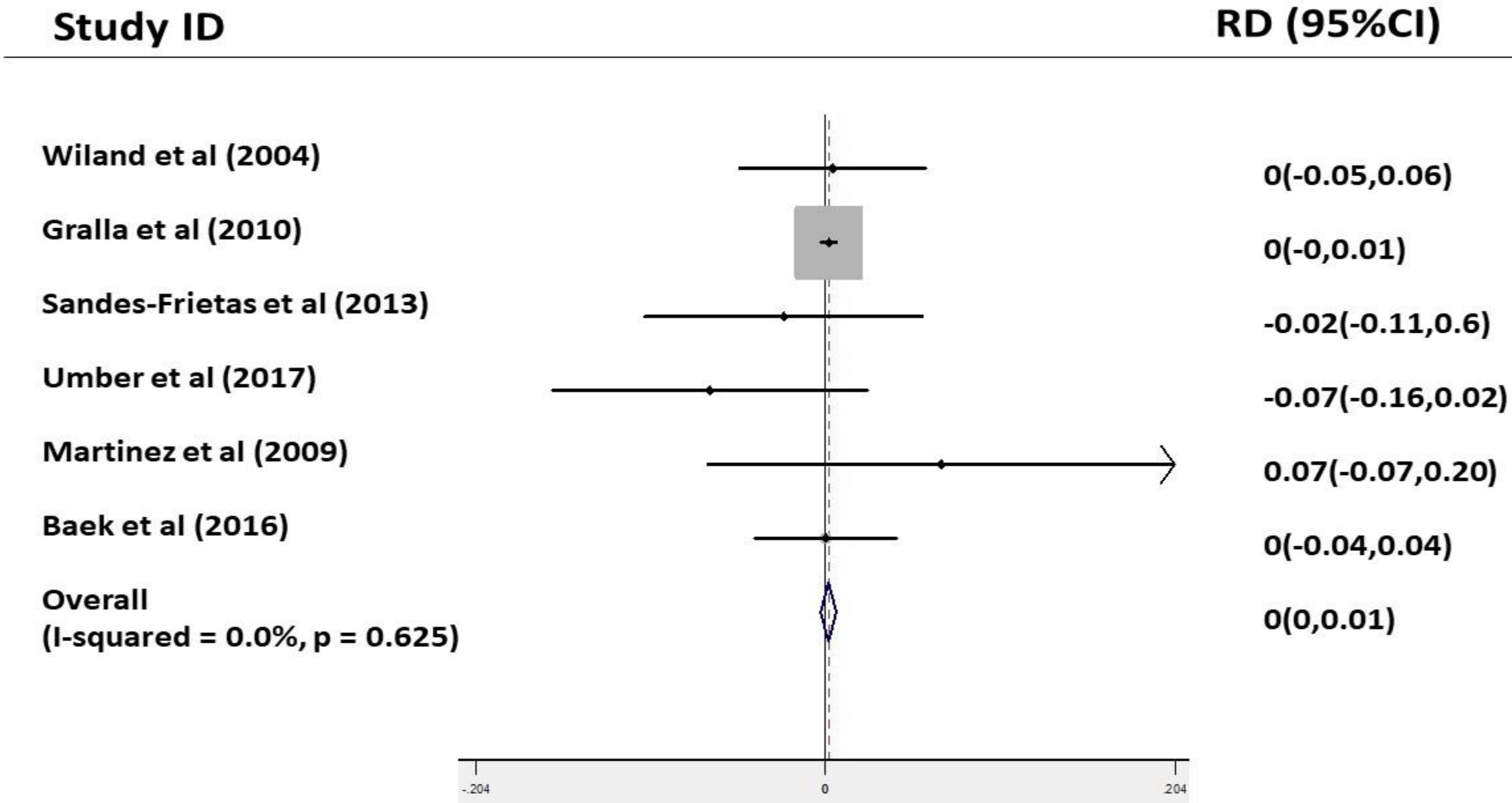
Author	Type of study	Country	Journal	Year
Wiland et al	Retrospective observational study	USA	Transplantation	2004
Gralla et al	Retrospective observational study	USA	Transplantation	2010
Sandes-Frietas et al	Retrospective observational study	Brazil	International nephrology	2013
Schwarz et al	Retrospective observational study	Austria	Transplantation proceedings	2015
Umber et al	Retrospective observational study	Italy	Journal of nephrology	2017
Martinez et al	Retrospective observational study	Spain	Transplantation proceedings	2009
Baek et al	Prospective study	Korea	Experimental transplantation	2016

Baseline characteristics	Basiliximab group (n=14974)	No basiliximab group(n=14667)	P value
Gender (male,%)	62.3%	62.9%	0.28
Recipient age (years, mean)	48.65	47.09	
Donor age (years, mean)	40.05	38.95	
Cold ischemia time (hours,mean)	19.3	16.1	
Number of extended criteria donors	1347	1388	0.16

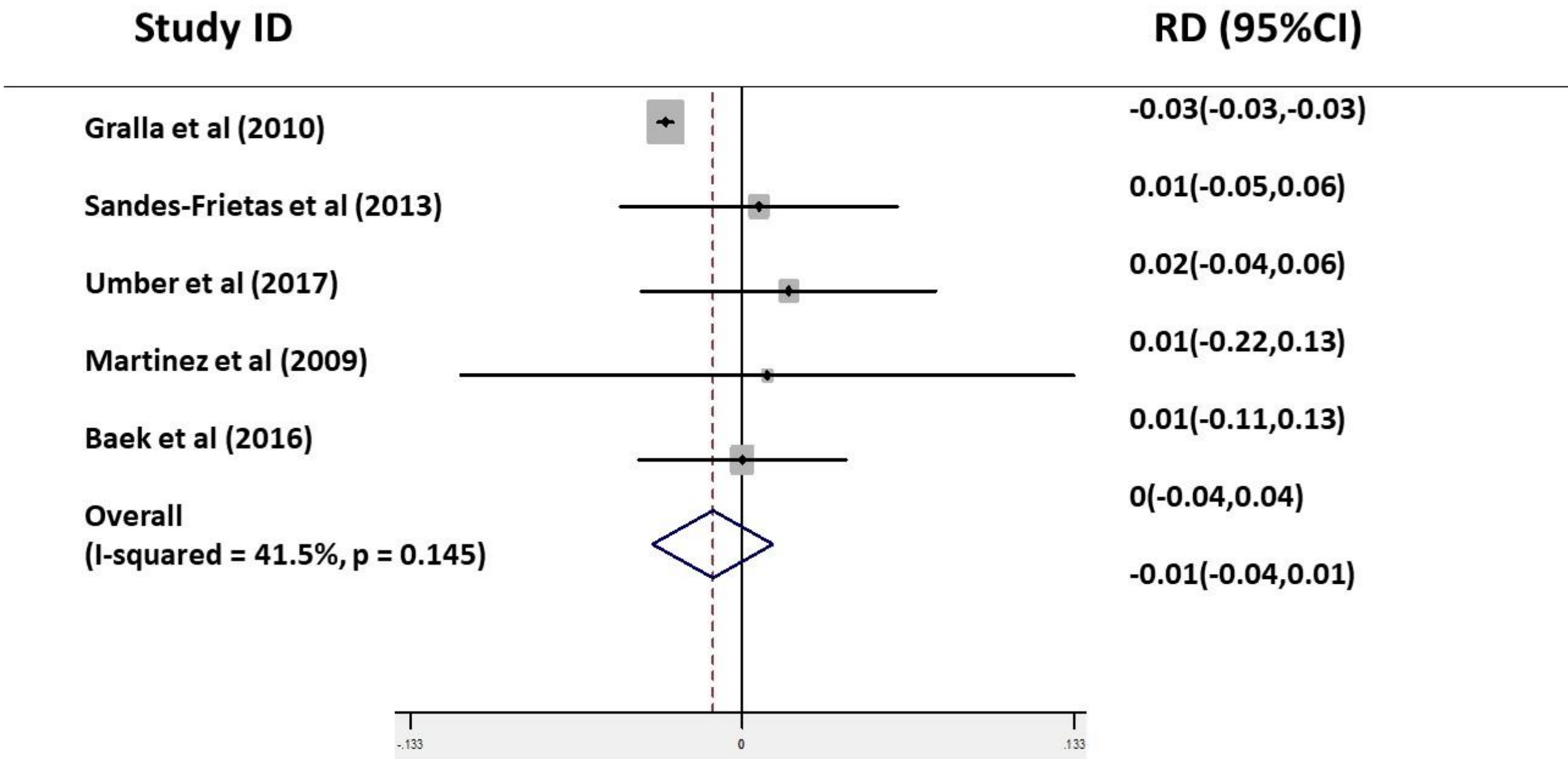
Acute rejection rate

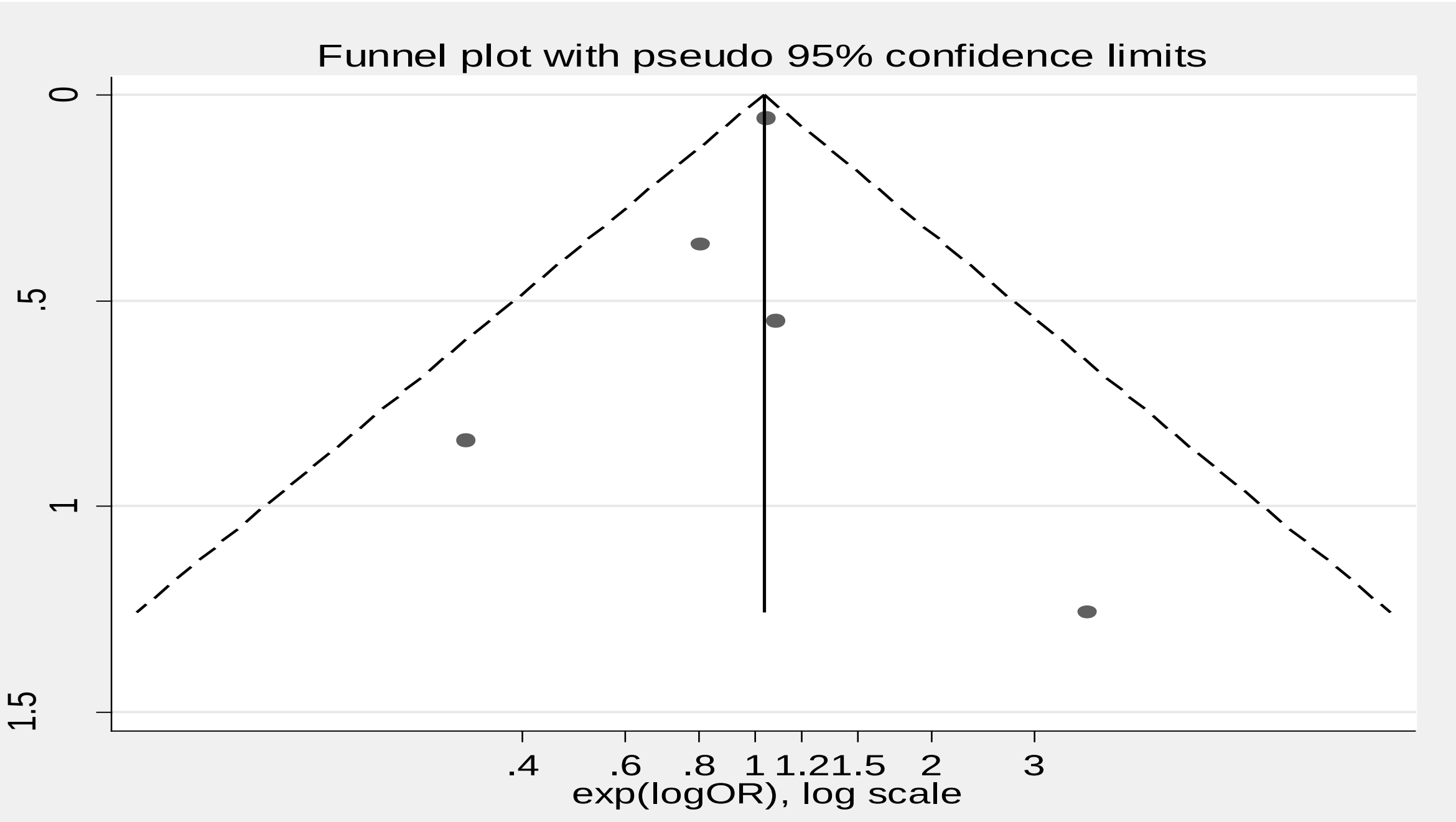


Graft survival



Patient survival




Funnel plot with pseudo 95% confidence limits
0
.5
1
1.5
.4
.6
.8
1
1.2
1.5
2
3
exp(logOR), log scale

Secondary results

- Change in creatinine
- NODAT
- CMV

Conclusions

- **Basliximab induction therapy has no significant effect on acute rejection rate, patient or graft survival in standard-risk renal transplant recipients with tacrolimus-based maintenance immunotherapy.**

- **More randomised-controlled studies are needed to address these.**

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Tina Dangerfield

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Thank you!