Journal Club
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ORIGINAL ARTICLE

Check for updates

Combination of calcineurin and mTOR inhibitors in kidney transplantation: a propensity score analysis based on current clinical practice

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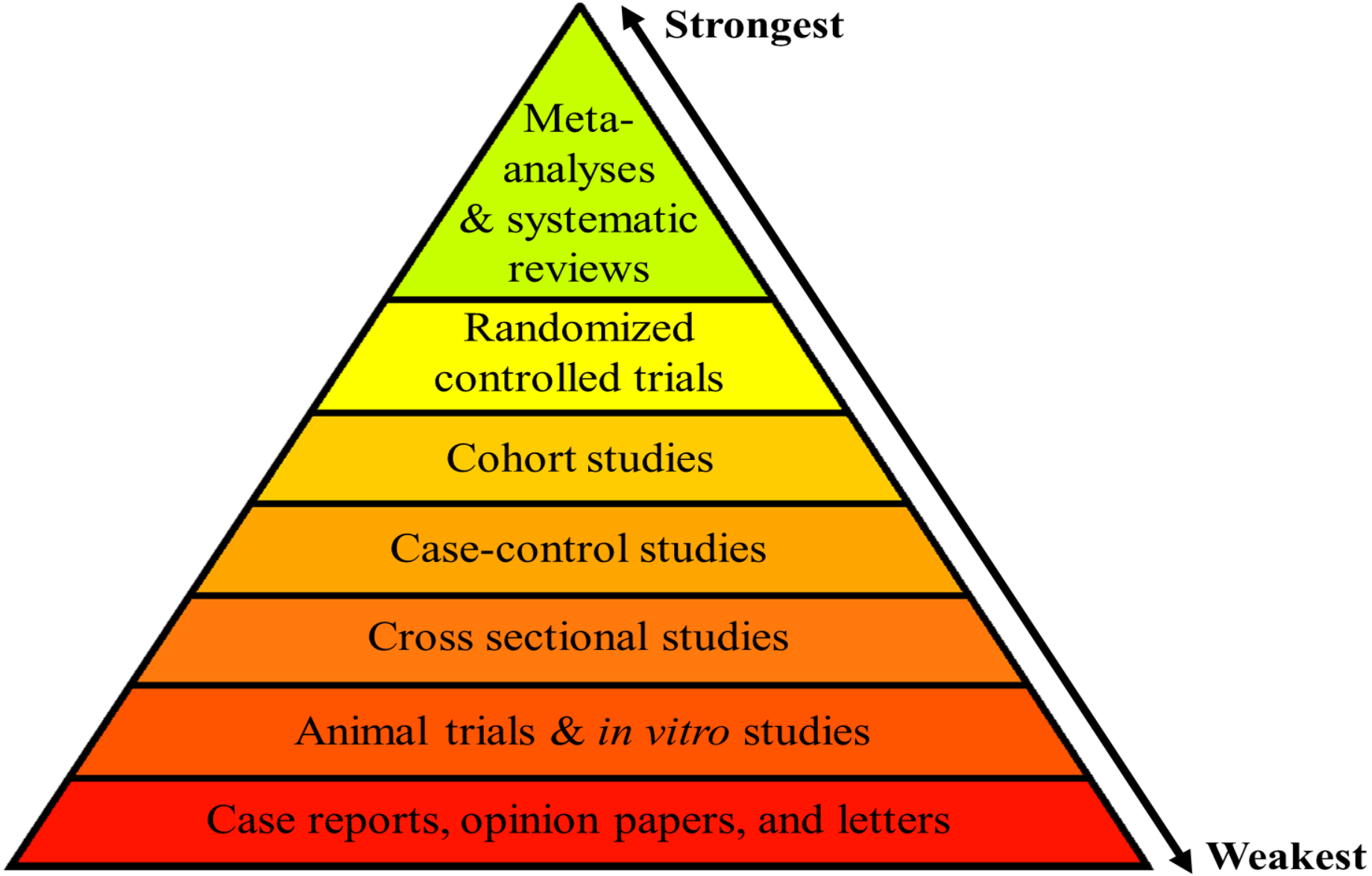
Hierarchy of Scientific Evidence



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CONSORT 2010 Checklist Of A Randomised Trial

Title and abstract

- 1a Identification as a randomised trial in the title
- 1b Structured summary of trial design, methods, results, and conclusions

Introduction, Background and objectives

- 2a Scientific background and explanation of rationale
- 2b Specific objectives or hypotheses

Methods

Trial design

- 3a: Description of trial design (such as parallel, factorial) including allocation ratio
- 3b: Important changes to methods after trial commencement (such as eligibility criteria), with reasons

Participants

- 4a: Eligibility criteria for participants
- 4b: Settings and locations where the data were collected

Interventions

- 5: The interventions for each group with sufficient details to allow replication, including how and when they were actually administered

Methods (cont'd)

Outcomes

- 6a: Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed
- 6b: Any changes to trial outcomes after the trial commenced, with reasons Sample size
- 7a: How sample size was determined
- 7b: When applicable, explanation of any interim analyses and stopping guidelines

Randomisation: Sequence generation

- 8a: Method used to generate the random allocation sequence
- 8b : Type of randomisation; details of any restriction (such as blocking and block size)

Propensity Score

- The propensity score allows one to design and analyze an observational (nonrandomized) study so that it mimics some of the particular characteristics of a randomized controlled trial.
- It is a balancing score when randomization is not possible.
- Conditional on the propensity score, the distribution of observed baseline covariates will be similar between treated and untreated subjects.
- A standard difference that is less than 0.1 has been taken to indicate a negligible difference in the mean or prevalence of a covariate between treatment .
- The standardized difference compares the difference in means in units of the pooled standard deviation.

Table 1 Intention-to-treat analysis of kidney transplant recipients at Hospital Clínic, Barcelona, who received either a deceased or a living donor kidney from June 2013 to December 2016 (n = 401)

	MPA based (n = 186)	mTORi based (n = 215)	Standardized difference	
			Raw	IPTW adjusted
Age (years)	54.10 (52.08–56.12)	58.69 (57.05–60.33)	0.35	−0.08
Sex (%males)	118/186 (63.4%)	132/215 (61.4%)	0.04	−0.05
Body mass index	26.21 (25.53–26.88)	25.04 (24.54–25.55)	−0.27	−0.03
Diabetes (%yes)	50/186 (26.9%)	49/215 (22.8%)	−0.09	−0.05
Etiology of CKD			NA	NA
Not known	48/186 (25.8%)	52/215 (24.2%)		
Hypertension	22/186 (11.8%)	32/215 (14.9%)		
Diabetes	31/186 (16.7%)	28/215 (13.0%)		
Glomerulopathy	43/186 (23.1%)	36/215 (16.7%)		
Polycystic Kidney Disease	11/186 (5.9%)	41/215 (19.0%)		
Interstitial/Urologic	20/186 (10.7%)	13/215 (6.1%)		
Systemic Lupus Erythematosus	4/186 (2.1%)	1/215 (0.5%)		
Others	7/186 (3.8%)	12/215 (5.6%)		
Dialysis before transplantation (%yes)			0.24	−0.09
Pre-emptive transplantation	42/186 (22.6%)	29/215 (13.5%)		
Hemodialysis	122/186 (65.6%)	155/215 (72.1%)		
Peritoneal dialysis	21/186 (11.7%)	31/215 (14.4%)		
Dialysis vintage—(months)	39.92 (31.86–47.38)	39.80 (33.73–45.86)	0.00	−0.04
Type of donor			0.75	0.04
Living	102/186 (54.8%)	46/215 (21.4%)		
Donor after Brain Death	57/186 (30.7%)	93/215 (43.3%)		
Donor after Circulatory death	27/186 (14.5%)	76/215 (35.3%)		
ABO incompatible (%living donors)	25/102 (24.5%)	1/46 (2.2%)	−0.53	0.03
cPRA I + II before transplantation (%)	21.24 (15.84–26.64)	14.26 (10.05–18.46)	−0.1	−0.01
HLA A-B-DR mismatches	3.64 (3.52–3.80)	4.27 (4.19–4.36)	0.42	−0.01
Immunosuppressive induction			0.15	0.00
No induction (%)	12/186 (6.9%)	17/215 (7.9%)		
Anti-lymphocytes antibodies (%)	91/186 (48.4%)	123/215 (57.2%)		
Anti-CD25 (%)	83/186 (44.6%)	75/215 (34.9%)		
Previous transplants			−0.30	−0.07
0	132/186 (70.9%)	179/215 (83.3%)		
1	36/186 (19.3%)	24/215 (11.2%)		
> 2	15/186 (9.7%)	12/215 (5.5%)		
Donor age	58.69 (56.88–60.50)	59.41 (57.61–61.20)	0.06	−0.02
Donor sex (%males)	80/186 (43.0%)	119/215 (55.3%)	−0.25	0.03
Ischemia time (h)	8.31 (7.03–9.59)	12.42 (11.32–13.51)	0.48	−0.01

Methods (cont'd)

Allocation concealment mechanism

- 9 : Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned Implementation
- 10 : Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions

Methods (cont'd)

Blinding

- 11a:If done, who was blinded after assignment to interventions (for example, participants, care providers, those) and how
- 11b: If relevant, description of the similarity of interventions Statistical methods
- 12a: Statistical methods used to compare groups for primary and secondary outcomes
- 12b: Methods for additional analyses, such as subgroup analyses and adjusted analyses

Results

Participant flow (a diagram is strongly recommended)

- 13a : For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analysed for the primary outcome
- 13b : For each group, losses and exclusions after randomisation, together with reasons

Recruitment

- 14a: Dates defining the periods of recruitment and follow-up
- 14b :Why the trial ended or was stopped Baseline data
- 15 A: table showing baseline demographic and clinical characteristics for each group Numbers analysed
- 16: For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups

Methods (cont'd)

Outcomes and estimation

- 17a: For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)
- 17b: For binary outcomes, presentation of both absolute and relative effect sizes is recommended Ancillary analyses
- 18: Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory Harms
- 19: All important harms or unintended effects in each group

Discussion

Limitations

- 20: Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses Generalisability
- 21: Generalisability (external validity, applicability) of the trial findings Interpretation
- 22: Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence

Other information

Registration

- 23: Registration number and name of trial registry Protocol
- 24: Where the full trial protocol can be accessed, if available Funding
- 25: Sources of funding and other support (such as supply of drugs), role of funders

Summary

- Observational study NOT RCT , single center , small size
- Short term study
- Higher percent of drug change in mtor group (near 30% changing protocol both per protocol and intention to treat have done)
- Per protocol results was not presented
- No study on mtor complications
- Funded by company