Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care
KSN SEOUL, KOREA 2026
The 46th Annual Meeting of the Korean Society of Nephrology
THE KOREAN SOCIETY OF NEPHROLOGY
Jun 11 (Thu) – 14 (Sun), 2026
COEX, Seoul, Korea

Abstract Type : Oral presentation
Abstract Submission No.: A-0735
Abstract Topic : Transplantation

Impact of ABO incompatibility on post-transplant CMV, BKV, and HZV infections in renal transplant patients: A meta-analysis

Agung Susanto[1], **Fredo Tamara**[1], Jonny Karunia Fajar[2], Ratih Tri Kusuma Dewi[1], Aryo Suseno[1]
[1]Department of Internal Medicine-Nephrology, Universitas Sebelas Maret, Indonesia
[2]Department of Internal Medicine, Universitas Brawijaya Hospital, Indonesia

Objectives : This study aimed to determine whether ABO incompatibility increases the risk for CMV, BKV, and HZV infections among kidney transplant patients.
Methods : We conducted a systematic review and meta-analysis according to PRISMA guidelines. Related articles were retrieved from PubMed, Scopus, and Embase until September 25, 2025. The Newcastle–Ottawa Scale (NOS) was used to assess the quality of the eligible studies. The Comprehensive Meta-Analysis program (CMA, Biostat Inc., New Jersey, USA) was utilized for statistical analysis and to calculate pooled odds ratios and 95% confidence intervals.
Results : A total of 26 trials involving over 7,000 subjects were included in the final analysis. Overall, ABO incompatibility significantly increased the risk of CMV infection (OR= 1.36; 95% CI: 1.06–1.75; p = 0.0200), BKV infection (OR = 1.83; 95% CI: 1.14–2.94; p = 0.0100) and HZV infection (OR = 1.68; 95% CI: 1.15–2.43; p = 0.0070). Thus, among the infections considered here, BKV presented the highest OR, followed by HZV and then CMV. There was no apparent bias in the publication of BKV and HZV studies.
Conclusions : ABO incompatibility is a strong risk factor for CMV, BKV, and HZV infections after kidney transplantation, with the highest correlation for BKV infection.

table 1.png

Table 1. Baseline characteristics of studies included in our analysis

Study	Country	Design	Age (years)	Sample size	Outcomes	Quality assessment
Ashimine 2014	Japan	RC	40.1 ± 15.1	320	Infection, rejection, survival	High
Becker 2015	Germany	R	46 (18-65)	102	Infection, cost, survival, surgical complication.	High
Fuchinoue 2011	Japan	R	43.5 ± 13.7	393	Renal function, survival, infection	High
Genberg 2008	Sweden	R	35.1 ± 14.3	45	Renal function, infection, B-cell	High
Habicht 2011	Germany	RC	45.6 ± 2.6	67	Rejection, infection, surgical complication	High
Hatakeyama 2014	Japan	R	45.0 ± 12.0	42	Rejection, infection, survival	High
Hwang 2013	Korea	R	44.1 ± 9.2	173	Renal function, survival, infection	High
Iwai 2015	Japan	R	64.7 ± 3.9	21	Rejection, infection, surgical complication	High
Jeon 2010	Korea	R	19-58	83	Renal function, infection, rejection	High
Kim 2017	Korea	R	50 (19–69)	797	Survival, graft function, rejection, infection	High
Kohei 2012	Japan	R	40.4 ± 12.3	185	Survival, rejection, infection	High
Kwon 2016	Korea	R	41.3 ± 12.1	834	Survival, infection, surgical complication, graft function	High
Lee 2016	Korea	R	43.3 ± 13.8	213	Rejection, graft survival, infection	High
Melexopoulou 2015	Greece	R	39.0 ± 11.0	60	Survival, graft function, renal function, infection	High
Naciri-Bennani 2016	France	R	45.0 ± 13.5	88	Survival, graft function, infection, renal function	High
Okumi 2016	Japan	RC	38.1 ± 11.7	1032	Graft function, survival, infection	High
Park 2016	Korea	R	49.0 ± 6.5	32	Survival, infection, renal function, surgical complication	High
Sánchez-Escuredo 2016	Spain	P	44.0 ± 13.0	176	Survival, rejection, infection	High
Schachtner 2015	Germany	P	52 (18–65)	97	Infection, mortality, renal function	High
Shin 2015	Korea	R	42.8 ± 11.8	469	Survival, renal function, infection, surgical complication	High
Shishido 2012	Japan	R	11.9 ± 4.5	323	Rejection, infection, survival	High
Subramanian 2015	US	P	52.2 ± 3.6	63	Graft function, renal function, infection, survival	High
Tanabe 2009	Japan	R	43.0 ± 13.5	125	Graft survival, mortality, infection	High
van Agteren 2014	Netherlands	R	54 (22–75)	100	Graft survival, infection	High
Yokoyama 2016	Japan	R	46.4 ± 14.6	71	Rejection, renal function, infection	High
Zschiedrich 2015	Germany	P	47.0 ± 11.0	203	Mortality, graft loss, infection, renal function	High

table 1.png

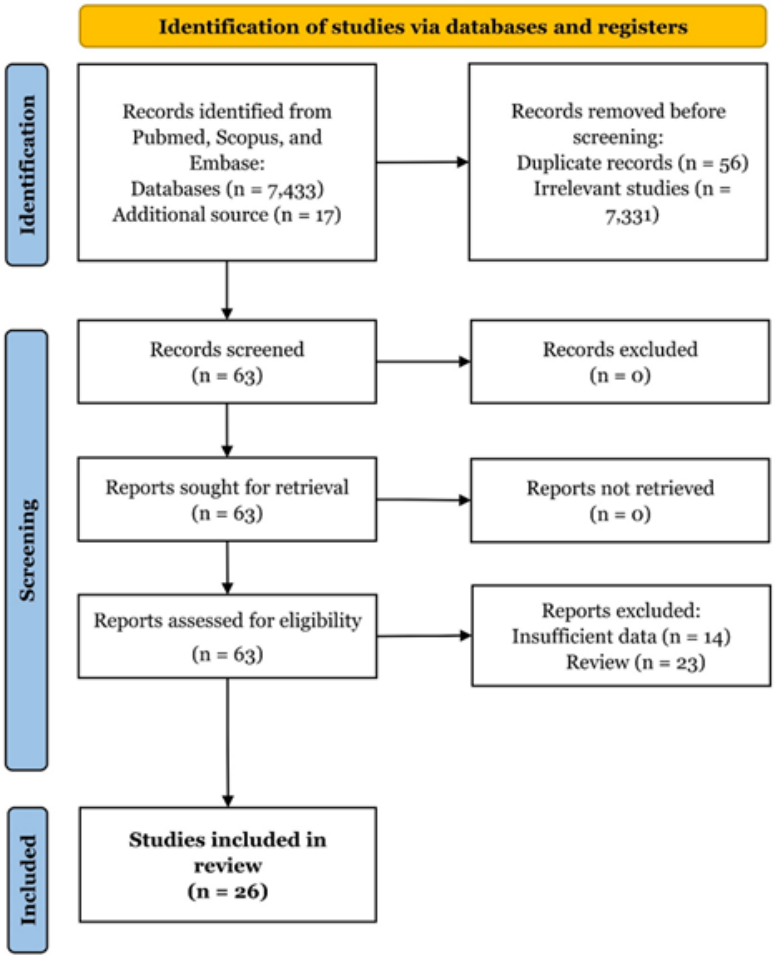

Figure 1. PRISMA flow diagram illustrating the study selection process for inclusion in the meta-analysis. A total of 7,450 records were identified through database searches (PubMed, Scopus, and Embase) and additional sources. After removing duplicates (n = 56) and irrelevant studies (n = 7,331), 63 records were screened. Following eligibility assessment, 37 reports were excluded (14 due to insufficient data and 23 being review articles). Ultimately, 26 studies met the inclusion criteria and were included in the final analysis.