KSN 2019
Seoul, Korea · May 23 - 26

**Abstract Type : Oral**
**Abstract Submission No. : OR-1581**

# Effect of Bortezomib on Chronic Antibody Mediated Rejection in Kidney Transplantation Recipients

**Hyung Duk Kim**, Byung Ha Chung, Cheol Whee Park, Yong-Soo Kim, Chul Woo Yang
Department of Internal Medicine-Nephrology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea, Republic of

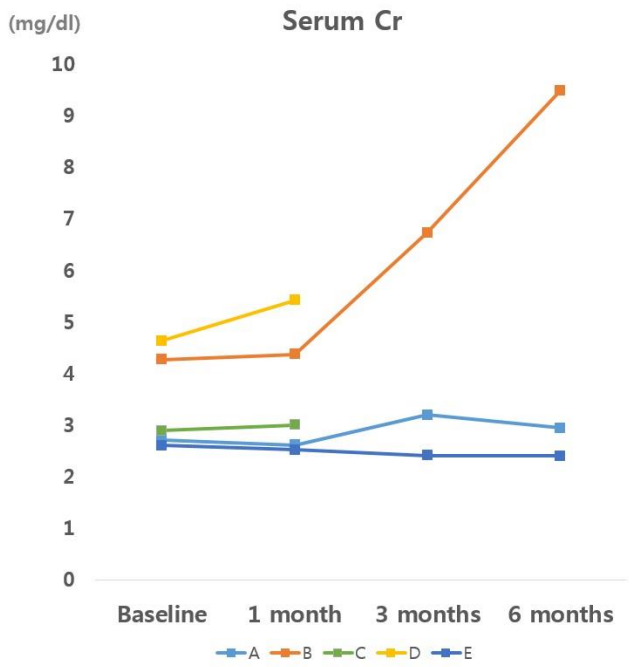
**Objectives:** Chronic antibody mediated rejection (CAMR) is the leading cause of late allograft loss in kidney transplantation recipients. And there is no proven effective treatment for CAMR so far. Here we report our experience of CAMR treatment with bortezomib.

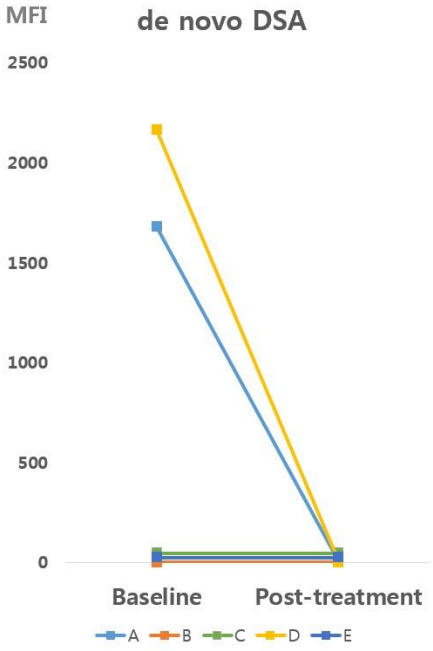
**Methods:** We reviewed patients received bortezomib-based CAMR treatment in the Seoul St. Mary's Hospital from November 2017 to January 2019.
Pathologic diagnosis were made following the 2013 update of the Banff classification. Bortezomib-based treatment protocol was consisted of 4 doses of bortezomib (administered on day 1, 4, 8 and 11 after end of plasmapheresis with dose of 1.3mg/$m^2$), 6 times of plasmapheresis and high dose IVIG (30g/kg) after last plasmapheresis. All patients were treated with rituximab and IVIG regimen prior to bortezomib-based treatment.

**Results:** Baseline characteristics are shown in Table 1. 5 patients received the treatment. All patients were ABO compatible and their crossmatch and DSA showed negative. The mean duration to CAMR was 40.6 months. Patient B, C and E had acute rejection episodes.
In pathologic findings, patient A and B showed calcineurin inhibitor toxicity. Pathologic diagnosis of patient E showed IgA nephropathy class III, but the patient's primary renal disease was polycystic kidney disease.
Patient A, C and E had baseline creatinine under 3 mg/dL. And patient B and D showed baseline creatinine over 4 mg/dL. Patients with lower baseline creatinine showed relatively favorable allograft function after treatment. Patient B initiated hemodialysis after 7 months. And patient C was enrolled to the other clinical trial of novel treatment for CAMR. De novo DSA was detected only in patient D and E. And after treatment, de novo DSA was no longer detected.

**Conclusions:** Bortezomib-based treatment could be an alternative option in CAMR unresponsive to rituximab treatment. Long-term study in large size cohort will be needed to support evidence to use bortezomib for CAMR treatment.

Figure1. Changes of graft function and de novo DSA




## Baseline Characteristics

| ID | KT date | Sex/ Age | Donor | HLA MN | ABO | CDC XM | FCXM | PRA | DSA | Desensiti -zation | de novo DSA (MFI) | Rejection | Time to CAMR (months) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 2008.09.01 | F/29 | Father | 3 | O ⇨ O | N | N | 0% / 0% | No | No | A2(1678) | 2012.11. Chronic transplant glomerulopathy – RTX/IVIG<br>2018.05. CAMR | 50 |
| B | 2013.04.23 | M/38 | Mother | 2 | A ⇨ A | N | N | 0% / 0% | No | No | No | 2014.12. ATCMR IA, AAMR - steroid<br>2015.02 ATCMR IIA, AAMR - RTX/IVIG<br>2017.11. CAMR | 54 |
| C | 2013.10.07 | F/30 | Brother | 6 | A ⇨ A | N | N | 0% / 0% | No | No | A2(1045)<br>DR15(2227)<br>⇨<br>Negative | 2015.9. ATCMR IIA, AAMR - RTX/TPE/IVIG<br>2017.1. ATCMR IB, CAMR - RTX/IVIG<br>2018.4. CAMR - Steroid<br>2019.1. CAMR | 39 |
| D | 2015.02.02 | M/49 | Spouse | 4 | O ⇨ B | N | N | 16.6% / 0% | No | No | B37 (2892⇨ 2162) | 2017.10.17 CAMR – RTX/IVIG | 32 |
| E | 2016.05.10 | F/45 | DD | 4 | B ⇨ B | N | N | 41.7% / 60% | No | No | No | 2017.06. AAMR – RTX/TPE/IVIG<br>2018.9.22 CAMR | 28 |

HLA MN, HLA mismatch number; CDC XM, complement-dependent cytotoxicity crossmatch; FCXM, flowcytometry crossmatch; DSA, donor-specific anti HLA antibodies; CAMR, chronic active antibody-mediated rejection; DD, deceased donor; RTX, rituximab; IVIG, intravenous immunoglobulin; ATCMR, acute T cell mediated rejection; AAMR, acute antibody-mediated rejection; TPE, therapeutic plasma exchange