**Comparison of Initial Therapy of Intravenous Immunoglobulin (IVIG) versus IVIG Plus Infliximab in KD Patients Presenting with Coronary Artery Lesions** Pei-Ni Jone, MD¹, Heather Heizer PA², Marsha Anderson MD², Mary P Glode MD², Matthew J. Mulvahill MS³, Samuel R. Dominguez, MD, PhD²

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**Background:** We previously demonstrated that eighty percent of children with Kawasaki Disease who develop coronary artery lesions have them present at time of diagnosis. We postulated that these children represent a “high risk” group that may benefit from more aggressive initial therapy. Infliximab has been shown to decrease inflammation in KD patients when added to standard therapy. Therefore, we compared IVIG alone with IVIG plus infliximab as an initial treatment in KD patients with CAL to reduce IVIG resistance and to evaluate coronary artery changes between groups.

**Methods:** KD patients were retrospectively reviewed from 2009 to 2016. CALs were defined as LAD and RCA\_ z-scores > 2.5. KD patients with CALs on initial ECHO who were treated with IVIG alone were compared with those who were treated with IVIG and infliximab. . . Clinical characteristics, length of stay,and requirement of additional therapy were compared between groups using chi-squared test and Fischer’s exact tests. Effect of treatment on CALs between groups was assessed using linear mixed models at three time points: baseline, 2 weeks, and 6 weeks post treatment.

**Results:** 34 KD patients with CALs were treated with IVIG and 35 KD patients with CALs were treated with IVIG + infliximab. There were no differences in patient clinical and laboratory characteristics between the two groups (Table 1). 50% (17/34) of KD patients treated with IVIG required additional second therapy compared to 17% (6/35) of KD patients treated with IVIG + infliximab (p <0.008). There was a non-statistically significant trend towards shorter length of stay (3.86 vs 5.94 days) in the IVIG + infliximab group. There were no significant differences between treatment groups for resolution of CALs or fall in CRP.

Table 1: Patient Clinical Characteristics

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| --- | --- | --- | --- |
|  | IVIG (n = 34) | IVIG + Infliximab (n = 35 | p-value |
| Gender (male/female) | 28/6 | 26/9 | 0.60 |
| Age ≥ 1 year old | 28 (82%) | 22 (63%) | 0.06 |
| Age < 1 year old | 6 (18%) | 13 (37%) | 0.11 |
| Complete Symptoms (≥ 4) | 21 (62%) | 19 (55%) | 0.59 |
| Day of illness treated | 8.09 ± 4.26 | 9.29 ± 6.69 | 0.37 |
| Admit to PICU | 5 (15%) | 6 (17%) | 1.00 |
| CRP | 12.52 ± 8.81 | 13.43 ± 11.23 | 0.71 |
| ESR | 64.94 ± 29.52 | 58.71 ± 28.05 | 0.38 |
| WBC | 15.24 ± 5.45 | 15.21 ± 4.54 | 0.98 |
| Hgb | 11.60 ± 1.57 | 10.95 ± 1.79 | 0.12 |
| Platelets | 364.71 ± 113.62 | 429.43 ± 170.13 | 0.07 |
| Albumin | 3.31 ± 0.65 | 3.32 ± 0.63 | 0.92 |
| AST | 55.03 ± 50.25 | 51.99 ± 39.91 | 0.79 |
| ALT | 57.03 ± 56.89 | 53.79 ± 35.03 | 0.78 |
| GGT | 78.12 ± 66.00 | 116.31 ± 89.13 | 0.33 |
| Urine WBC ≥10 | 3 (9.68%) | 4 (12.90%) | 1.00 |
| Length of stay | 5.94 ± 6.33 | 3.86 ± 2.16 | 0.07 |

**Conclusions:** IVIG plus infliximab as initial therapy reduces the need for additional second line therapy in KD patients who present with CALs. Infliximab plus IVIG should be considered as initial therapy for children with KD presenting with CALs.