Safety and Efficacy of Anifrolumab in Systemic Lupus Erythematosus: Systematic Review with Network Meta-analysis

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Introduction: Enhanced cold sensitivity is an early and consistent phenomenon in scleroderma (SSc). Anifrolumab is a human monoclonal antibody targeting type 1 interferon receptor subunit 1 for treatment of systemic lupus erythematosus (SLE) with varying results. We performed a systematic review and network meta-analysis comparing varying doses of Anifrolumab versus placebo for treatment of SLE.

Methods: A comprehensive search of different databases was undertaken through May 31, 2022. The primary outcome was British Isles Lupus Assessment Group (BILAG)–based Composite Lupus Assessment (BICLA) score at 52 weeks. Secondary outcomes assessed included overall flares at 52 weeks, adverse events and serious adverse events. Network meta-analysis was conducted using random effects model and frequentist approach.

Results: A total of 3 RCTs with 4 unique intervention arms were included (Placebo, Anifrolumab 150mg, Anifrolumab 300mg, and Anifrolumab 1000 mg). A total of 1129 patients were randomized, of which 953 (84.4%) completed the study. The mean age of patient was 41.2 ± 1.3 years and female proportion was 1045/1129 (92.5%). Significantly higher ‘BICLA response’ was noted for Anifrolumab 300mg compared to placebo (RR: 1.61, CI: 1.30-1.99) (Figure 1A). The overall ‘flares’ were also significantly lower for Anifrolumab 300mg compared to placebo (RR: 0.76, CI: 0.65-0.90) (Figure 1B). The adverse events were evaluated by 4 groups. Significantly higher ‘any adverse events’ were noted for Anifrolumab 300mg (RR: 1.10, CI: 1.04-1.16) and Anifrolumab 1000mg (RR: 1.14, CI: 1.02-1.26) (Figure 1C). None of the groups of Anifrolumab showed significantly higher adverse events compared to Placebo (Figure 1D). Using the P-score, Anifrolumab 300mg was ranked higher for improved BICLA.

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response and lower flares, while the placebo group ranked higher for lower overall and serious adverse events.

**Conclusion:** Anifrolumab 300mg showed significantly better response at 52 weeks and lower overall flare events for SLE. The drug can be employed in clinical practice for SLE patients.