Advances in neonatal care have led to increased rates of survival among infants born extremely preterm (≤27 weeks gestation) with relative increase in morbidities, including adverse neurodevelopmental outcomes. These outcomes are proposed to be predictable by variables describing the perinatal and neonatal period; however, data are limited on health care utilization and role of comprehensive care clinic care (CCC) impacting neurodevelopmental outcomes post neonatal intensive care.

NICU follow-up programs might manage chronic illness but may not provide a medical home to meet the needs of these complex infants. They require follow-up care in a comprehensive care clinic (CCC) to meet their complex needs and reduce their risk of morbidities.

Comprehensive care guidelines on follow up care of premature infants have been described; however, the impact of comprehensive care implemented within the medical home on neurodevelopmental outcomes is not well defined.

A retrospective cohort was conducted from 2012-2016 among 481 infants ≤27 weeks. Baseline and outcome data were obtained from Neonatal Research Network database. CD was categorized into not impaired (CD score of ≥70) and severe cognitive impairment (CI) (CD score of <70 on the BSID-III).

The primary outcome was to determine predictors of CD such as rehospitalization, systemic steroid use and seizure. The secondary outcome was comparison of CD between UC and CCC group suggesting that CCC model may be best suited to meet needs of extremely preterm infants.

Among cohort of 481 infants (69% CCC vs 31% UC) the mean CD score was 85 (85 CCC vs 80 UC). 43% were Afro-American, 33% Hispanic and 24% Caucasian.

≥3 rehospitalizations, seizure disorder, and steroid use were significantly associated with CI in the bivariate analysis (P< 0.01).

CCC group was associated with a higher number of rehospitalizations (IRR= 1.92, 95% CI 1.02-3.64).

Rehospitalization was negatively correlated to CI score (Spearman’s rho = -0.19, p<0.01).

Increased rehospitalizations in former extremely preterm infants predicted adverse neurodevelopmental outcomes.

Systemic steroid use during NICU stay and concurrent seizure disorder in extremely preterm infants had an overall association with poorer neurodevelopmental outcomes.

Neurodevelopmental outcomes were similar to usual care in CCC group despite increased rehospitalizations, suggesting sicker patients in CCC group. This suggests a CCC model may be best suited to meet the needs of extremely preterm infants.