IMMUNOGLOBULIN THERAPY IN ATAXIA TELANGIECTASIA PATIENTS EXPERIENCES IN MALIGNANCY & INFECTION PREVENTION & SURVIVAL

Barbara Ornelas[1], Kenneth McClain[2], John Slopis[3], Carissa Scholin[4], Filiz Seeborg[4], Lisa Forbes Satter[4], Lenora Noroski[4]

[1] Baylor College of Medicine, Department of Pediatrics, Immunology, Allergy and Rheumatology

[2] Texas Children's Hospital - Baylor College of Medicine, Pediatrics, Hematology/Oncology

[3] MD Anderson - University of Houston, Pediatrics, Neuro-Oncology

[4] Texas Children's Hospital - Baylor College of Medicine, Pediatrics, Allergy and Immunology

Background: Ataxia-Telangiectasia (A-T) is a rare, autosomal recessive neurocutaneous primary immunodeficiency that is degenerative, without cure and fatal by adolescence/young adulthood. IgG and pneumocystis prophylaxis guidelines for immunodeficiencies exist, but consensus for this in A-T has not been established for early implementation before the inevitable immune failure, infection, malignancy and premature death. A-T diagnosis is mostly delayed/missed and the clinical onset, regression and severity are unique for each A-T patient without synchronized presentation but all have shortened, debilitating lives. Early IgG and anti-pneumocystis prophylaxis may maximize quality and duration of brief lifespans in AT.

Materials/Methods: Medical Record Review: Texas Children's Hospital (TCH) A-T by ICD-10-CN code "G11.3 Cerebellar with defective DNA repair"; "Ataxia-Telangiectasia syndrome", EPIC Slicer Dicer software (1/1/1989-10/10/2019 of Allergy/Immunology). From these, A-T clinical, immune and genetic data were decoded for anonymity and analyzed by descriptive statistics.

Results: Twelve A-T patients were studied with nine survivors who were prophylaxis-experienced (PE); three had died who were prophylaxis-naïve (PN). Humoral immune abnormalities were most common as low B cells, variable IgG, low IgA and elevated IgM. T-cellular depletion was severe in one patient. Five A-T had malignancies (three lymphoid; two solid); four PE A-T escaped invasive infections and survived their malignancies. All three deceased A-T were PN and had pneumocystis; one had lymphoid malignancy. Intravenous (IV) and subcutaneous (SC) IgG routes were tolerated by all A-T survivors. High IgM was found in four A-T patients; two PE A-T had high NK cells when lymphomas were diagnosed. Low T-cell excision circles (TRECs) identified two A-T by SCID Newborn Screen. Genetic mutations were confirmatory and compound heterozygous A-T was also progressive.

Conclusions: With the advent of SCID newborn screening, new opportunities exist to assess A-T disease progression, identify timing for prophylaxis and perform cancer screening until a cure is standardized. Early IgG/pneumocystis prophylaxis may be beneficial to quality of life and survival in A-T. Longitudinal studies with multi-center studies are necessary to better define immunogenetic phenotypes, evidence-based algorithms for IgG/prophylaxis use, malignancy markers and cure in this unique population.