Bruton’s agammaglobulinemia (X-linked agammaglobulinemia)

Genetics

-Gene: BTK (Xq21.3)

-XLR

Clinical findings/Dysmorphic features

-Recurrent bacterial infections in aff. males in first 2y (otitis most common prior to diagnosis)

-Also: conjunctivitis, sinopulmonary infections, diarrhea, skin infections

-60% of individuals are found to have immunodeficiency when they develop a severe, life-threatening infection (pneumonia, empyema, meningitis, sepsis, cellulitis, septic arthritis)

-Paucity of lymphoid tissue

Etiology

-3:1,000,000-6:1,000,000

Pathogenesis

-BTK expressed in myeloid cells, platelets, B lineage cells --> development/maturation of B cells

Genetic testing/diagnosis

-Males with early-onset infections, low serum immunoglobulins, absent B cells (CD19+ cells)

-Low but measurable IgG, <1% B Cells (CD19)

-90% BTK sequence variant, 8% gene targeted in/del; 3-5% CMA (larger deletions)

Others

-Treatment is gamma-globulin substitution (subcutaneous or intravenous every 2-4 weeks)