Adverse Events from Pfizer COVID-19 mRNA Vaccine

Categorized by System and Associated Autoimmune Mechanisms

www.DouglassUpdate.com

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DISCLAIMER[1]

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INTRODUCTION:

The *Cumulative Analysis of Post-Authorization Adverse Event Reports* from the COVID-19 vaccine ('the Pfizer document[2]) became available for our review after the organization Public Health and Medical Professionals for Transparency[3] sued the FDA to release it. The Adverse Events (AEs) are listed on nine (9) pages in the Appendix titled, *List of Adverse Events of Special Interest*. The document indicates that through February of 2021, there were 42,086 AE case reports containing 158,893 events.

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[2] Link to the Pfizer document:
https://phmpt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf
[3] Public Health and Medical Professionals for Transparency: https://phmpt.org/

Pfizer points out in the document that, “Reports are submitted voluntarily, and the magnitude of underreporting is unknown.” But also that, “An accumulation of adverse event reports (AERs) does not necessarily indicate that a particular AE was caused by the [vaccine]; rather, the event may be due to an underlying disease or some other factor(s) such as past medical history or concomitant medication.”

This document organizes the AEs according to their associated *autoimmune mechanisms* and the bodily *systems* that are adversely affected. Many hours were invested. And it is hoped that the individual AE ‘signals’ herein may be of utility to, 1) patients, as evidence that their health problems may or may not be related to receiving the messenger RNA (mRNA) vaccines; 2) clinicians, for differential diagnosis and clinical decision-making; and 3) lawyers working with plaintiffs[4] who may be seeking relief from alleged vaccine injuries, and in need of ‘likely as not’, or other, legal opinion statements[5].

The spike protein that is translated intracellulary from the mRNA in the vaccine products is thought to be a primary cause of the AEs. The lipid nanoparticle vehicles of the vaccines allow for the mRNA code to enter virtually every cell in the body, including the red blood cells. The N1-methylpseudouridine of the mRNA, and other adjuvant components in the preparations may also play a role in these pathophysiological processes.

The three most primominent ‘meta-signals’ that stand out from the Pfizer document are, 1) the *autoimmunities*; 2) the various inflammations, especially the *vasculitidies*, possibly from damage to ACE2 receptors of the vascular endothelium, and prion-induced damage to hemoglobin[6] in the red blood cells; and 3) the resulting *thromboses* and the downstream tissue and organ injuries resulting from the thrombohemopathology and ischemia.

[4] Example of COVID-19 vaccine-injured advocacy group: www.realnotrare.com
[5] Legal statements: ‘as likely as not’, vs “clear and convincing evidence”, vs “the preponderance of the evidence.”
[6] Liu, et al. (2020) suggest that hemoglobin may be the most dangerous binding target of the spike protein, not the ACE2 receptor: They propose that the key pathogenic molecular step of COVID-19 is to attack hemoglobin, causing dissociation of the porphyrins from iron and releasing iron into the circulation. Thus, hemoglobin loses its capacity to bind with oxygen and hinders its delivery to major organs, which is coupled with rapid multi-organ failures. Also, free iron released may result in oxidative damage to the tissues and increased blood viscocity, with diffuse micro and macro circulatory thrombosis - all leading to inflammation, immune dysfunction, cellular and tissue ischemia, organ deterioration and death in some cases.

Miscellaneous comments: *Signs and symptoms* that were reported by the research subjects are included as a Footnote[7]. The author reminds readers that 'Command + F' is a very useful tool[8]; insights can be gleaned from word densities[9]; cross-reference with the COVID-19 Resources document on www.DouglassUpdate.com is recommended[10]; some spellings have been changed[11]; and, please contact the author at info@douglassupdate.com with any recommended corrections/edits that you may have.

AUTO-ANTIBODIES NAMED SPECIFICALLY:

In the Pfizer document, the auto-antibodies are named starting with 'anti-', and ending with '-antibody' (eg, 'anti-DNA antibody'; 'anti-insulin antibody', etc.). For brevity, these prefixes and suffixes have been removed. To the non-medical listener of The Douglass Update: It is important to understand that the COVID-19 mRNA vaccines may induce the immune system to create these 'auto-antibodies', which may be associated with the various health problems listed. Autoantibodies are proteins made by your own immune system that mistakenly attack, and may cause damage to, normal enzymes, proteins, receptors, cells, tissues, and other essential metabolic/physiological substances.

1. Multisystem attack (autoantibodies against):
    a. Aquaporin-4 (AQP4): Antibodies against AQP4 attack this integral membrane protein that conducts water through the cell membrane.
    b. Cardiolipin: Important phospholipid component of the inner mitochondrial membrane, where ATP (the energy "currency") is generated in every cell of the body. Cardiolipin was discovered first in heart tissue, thus the name 'cardio'. Anti-Cardiolipin antibody is one of the anti-mitochondrial antibodies.

[7] Signs and symptoms reported: Abdominal pain, abnormal liver scan, asthenia, arthralgia, chest pain, chills, cough, diarrhea, dizziness, dyspnea, expanded disability status scale score, erythema, fatigue, fetor hepaticus (from thiols; a late sign in liver failure), fever (pyrexia, flushing, foaming at the mouth, headache, hyperhidrosis, hypertension, hypoesthesia, hypotension, influenza-like illness, malaise, myalgia, nausea, oropharyngeal pain, pain in extremity, paraesthesia, pruritis, rash, sneezing, swelling, tachycardia, tachypnea, tonic-clonic movements, urticaria, vaccination site erythema, swelling, pain, visual changes, vomiting.
[8] Eg, Command + F, with entry of 'phospholipid' highlights all incidents of the word, including 'anti-phospholipid syndrome'.
[9] Examples: Word densities of the AEs related to: Vasculitis and thrombosis (evidence for systemic damage to the ACE2 receptors of the vascular endothelium from the spike protein); Encephalitis (examples of manifestations from the systemic neurological inflammation); Seizures (the numerous classifications and types); Lupus (systemic manifestations of this well-documented autoimmune condition); Herpes simplex and herpes zoster eruptions (signs of immune suppression).
[10] [To be posted and linked soon, with URL included here].
[11] Eg, 'oedema' to 'edema'.

c. DNA: Antibodies against DNA (deoxyribonucleic acid) damage the genetic instructions used in the growth, development, functioning, and reproduction of all known living organisms and many viruses.
d. Exosomes (exosome complex): Attack on exosomes affects the normal intracellular breakdown of genetic material RNA (ribonucleic acid).
e. Glycyl-tRNA synthetase: part of the group of synthetase enzymes that charge amino acids to the cognate transfer RNA during the translation process. Autoimmune attack of this enzyme is found in patients with inflammatory myopathy (myositis, muscle inflammation).
f. Mitochondria: The energy (ATP) factories for every cell of the body. Anti-mitochondrial antibodies can be detected in numerous conditions (myocarditis, cardiomyopathy, biliary cirrhosis, hepatitis, lupus, Sjögren's syndrome, systemic sclerosis, collagenosis, hemolytic anemia).
g. RNA polymerase: the enzyme that synthesizes RNA from the DNA template in the process of 'transcription'. Antibodies against this enzyme would be expected to disrupt normal cellular processes. Measurement of the RNA polymerase antibody is used to assess for systemic sclerosis or other autoimmune diseases.
h. Synthetase: Antisynthetase syndrome is an otherwise rare disorder from an autoimmune attack on the enzymes of the synthetase class that can affect multiple systems of the body muscle, especially muscles (myositis), joints, and lungs. Raynaud phenomenon and cracking of hands and common. In one analysis, 14% of patients with the syndrome had died at five years.
i. Transglutaminase: This enzyme is involved in the repair of tissue damage. Antibodies that attack this enzyme (anti-tissue transglutaminase antibodies) may slow wound healing. The antibodies are also detected in patients with celiac disease.

2. <u>Endocrine attack</u> (hormones and enzymes):
    a. GAD: Antibodies attack the enzyme glutamic acid decarboxylase. The antibodies are a reliable serological marker of insulin-dependent diabetes mellitus. Also, see Stiff Person Syndrome.
    b. IA2: Antibodies found in 78% of type 1 diabetes at the time of diagnosis. They are directed against peptide fragments of 37 to 40 kDa, which are obtained after trypsinization of Langerhans islet homogenates.
    c. Insulin: Anti-insulin antibodies attack the hormone insulin, which may worsen diabetes.
    d. Insulin receptor: Antibodies against the insulin receptor can cause diabetes by blocking the binding of insulin to its receptor in target tissues. In some cases, these antibodies can act as an insulin agonist (promoter)

after binding to the receptor and thereby cause hypoglycemia (low blood sugar).

  e. Islet cells: These auto-antibodies cause the destruction of the beta cells of the pancreas, where insulin is produced. Endocrinologists often measure the islet cell autoantibodies to estimate an individual's risk of developing Type I diabetes.
  f. Thyroid: There are five (5) primary auto-antibodies against the thyroid gland leading to chronic inflammation of the thyroid (thyroiditis), tissue damage, and disruption of thyroid function.
  g. Zinc transporter 8: ZnT8 is an islet β-cell secretory granule membrane protein. The antibody against ZnT8 is seen in some cases of type 1 diabetes (autoimmune diabetes).

3. Gastrointestinal (stomach and intestines):
   a. Gliadin: Anti-gliadin antibody of Celiac disease.
   b. Parietal cells: Anti-parietal cell antibodies (APCA) attack the H+/K+ ATPase enzyme of the stomach's parietal cells. May be associated with atrophic gastritis, pernicious anemia (unable to absorb vitamin B12), celiac disease, autoimmune thyroid diseases, and vitiligo.
   c. Smooth muscle: Smooth muscle antibodies are found in autoimmune hepatitis (the immune system attacks liver tissues).
4. Hematology (blood cells):
   a. Erythrocytes: Antibodies attack the red blood cells (see also in pregnancy, neonatology, and with blood transfusions).
   b. Platelets: Antibodies attack platelets resulting in an abnormally low number of platelets (thrombocytopenia) and may result in hemorrhages.
   c. Prothrombin and Thromboplastin (two of the clotting factors): Antibody attack against prothrombin and thromboplastin can result in clotting in arteries and veins ('thromboembolic' complications), recurrent miscarriage, and immune thrombocytopenia (all seen in "antiphospholipid syndrome").
5. Infectious Disease/Immune Deficiency:
   a. Interferon (IFN): Autoantibodies against IFN can lead to immunodeficiency syndromes (AIDS-like syndrome), with chronically recurring infections. Preexisting anti-IFN autoantibodies are associated with an increased risk of having severe COVID-19.
6. Nephrology (kidneys): Glomerular basement membrane (GBM): Antibodies against the GBM cause glomerulonephritis (damage and inflammation to the GBM of the kidneys). In up to 70% of patients, pulmonary hemorrhages are present, and the 'triple association' (glomerulonephritis, pulmonary hemorrhage, and the anti-GBM Ab) is referred to as Goodpasture syndrome.

7. Neurology (nervous system, central and peripheral):
    a. Basal ganglia: Anti-basal ganglia antibodies (ABGAs) are seen in some extrapyramidal movement disorders, with manifestations of chorea, tics, dystonia, and myoclonus.
    b. Gangliosides: These are ‘galactocerebrosides’ (‘sugar lipids’) on all nerve cell membranes. Autoimmune attack on the gangliosides leads to neuropathies of the central (brain, cerebellum, spinal cord), peripheral, and autonomic nervous systems (eg, lightheadedness on standing, gut dysfunction, sweat abnormalities). N.B.: Ganglioside antibodies may support the diagnosis of Guillain-Barre syndrome (GBS), one class of autoimmune peripheral neuropathies associated with the COVID-19 mRNA inoculations.
    c. Muscle-specific kinase (MuSK): antibodies against the MuSK enzyme may cause muscle fatigue and weakness. Seen in myasthenia gravis.
    d. Myelin-associated glycoprotein (MAG): Antibodies against MAG are associated with demyelination in peripheral neuropathy.
    e. N-methyl-D-aspartate (NMDA) receptor: Antibodies against NMDA are associated with limbic encephalitis, ataxia, epilepsia partialis continua, and systemic lupus erythematosus (SLE).
8. Neuromuscular:
    a. Acetylcholine receptor: The connection between nerves and muscles at the neuromuscular junction.
    b. Actin: A protein that (together with myosin forms the contractile filaments of muscle cells.
    c. Glycyl-tRNA synthetase (see above).
    d. Signal recognition particle (SRP): Antibodies against SRP indicate necrotizing myopathy (destruction of muscles).
    e. Voltage-gated calcium channel (VGCC): Antibodies against VGCC antibodies are generally associated with Lambert-Eaton myasthenic syndrome (muscle weakness due to decreased muscle contraction). Also associated with cerebellar degeneration (balance center of the brain) and paraneoplastic syndromes (when cancer-fighting antibodies or white blood cells, known as T cells, mistakenly attack normal cells in the nervous system.
9. Obstetrics: Human leucocyte antigen (HLA): Antibodies against HLA are usually (and commonly) formed in women during pregnancy, or after receiving a blood transfusion or organ transplant. Pregnant women with HLA are at an increased risk for miscarriage and spontaneous preterm delivery due to antibody-mediated

maternal anti-fetal rejection. HLA antibodies may also be dangerous to transfusion recipients.

10. Oncology:
    a. Epithelium: Anti-epithelial antibody. This is detectable in various adenocarcinomas and is used clinically to identify and classify basal and squamous cell carcinomas of the skin, micrometastases to the lymph nodes, and esophageal carcinomas.
    b. Vimentin: The antibody to vimentin is used to detect vimentin, an epithelial-mesenchymal transition (EMT) marker, giving an indication of tumor progression and potential for metastasis. It is of value in oncology for the differential diagnosis of undifferentiated neoplasms including melanoma and sarcoma.
11. Reproductive Health: Sperm: Antisperm antibodies (damage or destroy sperm; may contribute to infertility. NB: The mRNA vaccines also impair sperm motility and semen concentrations. See 'Gynecology/Female (eg, 'ovarian autoimmunity'), and Male Reproduction.
12. Rheumatology:
    a. Antinuclear antibodies: Target the normal proteins within the nucleus of the cell. Associated with autoimmune diseases, including lupus, Sjogren's syndrome, and mixed connective tissue disease.
    b. Cyclic citrullinated peptide (CCP): Antibody against CCP is seen in rheumatoid arthritis.
    c. Ribosomal P protein: Antibody (anti-Rib-P) is a serological marker for systemic lupus erythematosus (SLE) and is routinely tested by targeting the common epitope of three ribosomal proteins of P0, P1, and P2.
13. Vascular:
    a. Antineutrophil cytoplasmic antibody (ANCA): ANCA testing is most often used to find out if you have a type of autoimmune vasculitis.
    b. Antiphospholipid: Antibodies bind to phospholipids and increase the risk of excessive blood clotting.
    c. Beta-2 glycoprotein: The autoantibody causes inappropriate blood clotting in the arteries and veins when it attacks Beta-2 glycoprotein, a primary phospholipid of our platelets and cell membranes. Other antiphospholipid antibodies include lupus anticoagulant and cardiolipin antibodies.

AUTOIMMUNE CONDITIONS NAMED SPECIFICALLY:

These conditions result from the auto-antibodies named above; each was named in the Pfizer document as “auto-immune [fill the blank]”; eg, ‘autoimmune hypothyroidism,’ ‘autoimmune myocarditis,’ autoimmune encephalitis.

1. Endocrinology:
    a. Hypothyroidism
    b. Thyroiditis
2. ENT:
    a. Inner ear disease
3. Cardiology:
    a. Myocarditis
    b. Pericarditis
4. Hematology/Oncology:
    a. Anemias: Aplastic, hemolytic,
    b. Lymphoproliferative syndrome
    c. Neutropenia
    d. Pancytopenia
5. Orthopedics:
    a. Myositis
6. Rheumatology:
    a. Arthritis
    b. Lupus
7. Gastroenterology:
    a. Cholangitis
    b. Colitis
    c. Enteropathy
    d. Hepatitis
    e. Pancreatitis
8. Dermatology:
    a. Blistering disease
    b. Dermatitis
9. Nephrology:
    a. Nephritis
    b. Glomerulonephritis
10. Neurology:
    a. Demyelinating disease
    b. Encephalitis
    c. Encephalopathy
    d. Neuropathy

11. Ophthalmology:
    a. Retinopathy
    b. Uveitis

ENZYME ABNORMALITIES (elevations and/or deficiencies):

1. 5'nucleotidase
2. Liver enzyme-related:
    a. Alanine aminotransferase (ALT)
    b. Aspartate aminotransferase (AST)
    c. AST to platelet ratio (used clinically to determine the likelihood of liver fibrosis and cirrhosis)
    d. AST/ALT ratio
3. Alkaline phosphatase (can be from liver or bone)
4. Biotinidase
5. C1 esterase inhibitor deficiency in patients with Hereditary angioedema
6. Cholinesterase
7. Gamma-glutamyltransferase
8. Glutamate dehydrogenase deficiency
9. Leucine aminopeptidase
10. Mitochondrial aspartate aminotransferase

GENETIC DISORDERS:

1. 1p36 deletion syndrome: Severe intellectual disability; most do not speak, or speak only a few words and may have temper tantrums, bite themselves, or exhibit other behavior problems.
2. CDKL5 deficiency disorder: Seizures, developmental delay, and severe intellectual disability. Seizures typically begin within a few months after birth and are difficult to control with medications. Most children have 1 to 5 seizures per day.
3. Double cortex syndrome: One of the 'subcortical band heterotopias', an otherwise rare neuronal migration disorder, presenting with seizures and intellectual impairment. It is X-linked, with double-cortin (DCX) gene mutation being the causative factor. A microtubule-associated protein is encoded by DCX gene, which is essential for neuronal migration in the in-utero cerebral embryogenesis.

4. GM2 Gangliosidoses: related to deficiency beta-hexosaminidase which catalyzes the biodegradation of gangliosides (fatty acid derivatives). The diseases are better known by their individual names: Tay–Sachs disease, AB variant, and Sandhoff disease.

SYSTEMIC METABOLIC AND CYTOKINE ABNORMALITIES:

1. 2-Hydroxyglutaric aciduria
2. Acquired C1 inhibitor deficiency
3. Alpers disease: Progressive mitochondrial DNA depletion syndrome with psychomotor regression (dementia).
4. Antiphospholipid syndrome
5. Aspartate-glutamate-transporter decrease
6. Cold agglutinins
7. Cytokine storm
8. De novo purine synthesis inhibitors-associated acute inflammatory syndrome: proinflammatory reaction with fever, arthralgia, muscle pain, and elevated inflammatory markers.
9. Galactose elimination capacity decreased
10. Glucose transporter type 1 deficiency syndrome
11. Hepaplastin decreased
12. Hyperammonaemia (elevated serum ammonia)
13. MELAS syndrome: lactic acidosis with vomiting, abdominal pain, fatigue, muscle weakness, and dyspnea. Accumulation of lactic acid has also been noted in the spinal fluid and in the brain.
14. Molybdenum cofactor deficiency
15. Multiple organ dysfunction syndrome
16. Primary amyloidosis (otherwise rare)
17. Retinol binding protein decreased

ADVERSE EVENTS (AES) LISTED BY SYSTEM/SPECIALTY:

Cardiology:

1. Arrhythmia
2. Cardiomyopathy
3. Cardiac amyloidosis and sarcoidosis

4. Cardiac insufficiency, cardiac failure, and cardiac arrest
5. Cardiogenic shock, ‘circulatory collapse’; cardio-respiratory distress and arrest
6. Hypotensive crisis, shock
7. Thrombosis and occlusion: cardiac ventricular, coronary artery, arterial bypass, intracardiac, intrapericardial,
8. Intracardiac mass
9. Kounis syndrome (mast cell activation with acute coronary syndrome)
10. Lambl's excrescences (valvular collagen and fibrin; cause of thromboembolism)
11. Myocardial infarction, acute
12. Myocarditis (endocarditis), immune-mediated and ‘myocarditis post-infection
13. Pericarditis (Dressler's syndrome)
14. Postpericardiotomy syndrome
15. Postural orthostatic tachycardia syndrome (POTS)

Dermatology:

1. Alopecia areata (sudden hair loss starting with circular bald patches).
2. Butterfly rash (a sign of lupus)
3. Chilblains (itchy swellings that are reactions to cold temperature)
4. Cutaneous amyloidosis
5. Cutaneous lupus erythematosus
6. Cutaneous sarcoidosis
7. Cutaneous vasculitis
8. Dermatitis: bullous, herpetiformis, interstitial granulomatous, and palisaded neutrophilic granulomatous
9. Dermatomyositis, paraneoplastic
10. Dermatosis, febrile, granulomatous, neutrophilic, rheumatoid neutrophilic
11. Digital pitting scars: pinhole-sized digital concave depressions with hyperkeratosis seen commonly in patients with progressive systemic sclerosis (PSS).
12. Eczema herpeticum
13. Epidermolysis and epidermolysis bullosa
14. Erythema induratum, multiforme, and nodosum
15. Exanthema subitum
16. Hemorrhagic edema in infancy
17. Keratoderma blenorrhagica
18. Lichen sclerosis, planus, and planopilaris (inflammation of hair follicles)
19. Metastatic Crohn's disease: an otherwise rare cutaneous manifestation of Crohn's disease, with the presence of noncaseating granulomatous lesions of the skin at sites anatomically separate from the gastrointestinal tract.
20. Multiplex morphoea

21. Palmoplantar keratoderma
22. Pemphigoid
23. Pemphigus (and paraneoplastic pemphigus): blistering autoimmune diseases (autoantibodies against desmoglein, the "glue" that attaches adjacent epidermal cells through desmosomes.
24. Pityriasis lichenoides et varioliformis
25. Psoriasis
26. Purpura: Henoch-Schonlein, thrombotic, thrombocytopenic, palpable
27. Pyoderma gangrenosum
28. Sclerodactylia
29. Scleroderma, and associated digital ulcer
30. Stevens-Johnson syndrome
31. Toxic epidermal necrolysis
32. Tuberous sclerosis (an otherwise rare genetic condition that causes tumors to develop in the brain, skin, kidneys, heart, ice, and lungs).
33. Ulcerative keratitis
34. Urticaria, acute (at the injection site) and chronic

Endocrinology (“Immune-mediated endocrinopathy”):

1. Generalized: Polyglandular autoimmune syndrome type I, II, and III
2. Adrenals:
    a. Addison's disease
    b. Adrenal thrombosis
3. Pancreas:
    a. Diabetes mellitus, Type 1 diabetes mellitus, latent autoimmune diabetes
    b. Insulin autoimmune syndrome
    c. Diabetic ketoacidosis and ‘ketosis prone diabetes mellitus’
    d. Fulminant type 1 diabetes mellitus
    e. Diabetic mastopathy
4. Pituitary: Lymphocytic hypophysitis (an otherwise rare, autoimmune condition where lymphocytes infiltrate the pituitary gland and can cause hypopituitarism).
5. Thyroid:
    a. Thyroid stimulating immunoglobulin (activates TSH receptor, stimulating TSH synthesis, resulting in goiter).
    b. Thyroiditis and atrophic thyroiditis
    c. Grave’s disease (Basedow's disease)
    d. Marine-Lenhart syndrome (a variant of Graves' disease with incidentally functioning nodule(s) which are responsive to thyroid stimulating hormone but are not responsive to thyroid stimulating immunoglobulins).
    e. Hashimoto's encephalopathy, hashitoxicosis

f. Hyperthyroidism
g. Hypothyroidism
h. Immune-mediated hypothyroidism and hyperthyroidism
i. Immune-mediated thyroiditis

Ear, Nose, and Throat (Otolaryngology):

1. Laryngeal rheumatoid arthritis (cricoarytenoid arthritis)
2. Laryngospasm
3. Laryngotracheal edema
4. Tracheal obstruction

Gastroenterology:

1. Achalasia, esophageal
2. Amyloidosis, gastric and hepatic
3. Ascites: bactericides, biliary, hemorrhagic,
4. Bilirubin: hyperbilirubineia (conjugated), bilirubinuria
5. Bromosulphthalein test positive (decreased removal means decreased liver function)
6. Budd-Chiari syndrome (obstruction of venous blood flow from the liver)
7. CEC syndrome (celiac, epilepsy, and occipital calcifications)
8. Celiac disease
9. Child-Pugh-Turcotte score increased (score for the need for liver transplant)
10. Cholangitis: sclerosing, immune-mediated, primary biliary, Reynold's syndrome (auto-immune biliary cholangitis)
11. Terminal Ileitis (inflammation of the terminal portion of the ileum, usually associated with Crohn’s disease.
12. Colitis: erosive, herpetic, microscopic, neutropenic, ulcerative
13. Congestive hepatopathy
14. Crohn's disease, neonatal Crohn’s disease
15. Enteritis leukopenic
16. Enterocolitis, immune-mediated, mastocytic
17. Esophagitis, eosinophilic
18. Gastritis, immune-mediated
19. Hepatic artery or vein thrombosis, embolism, flow decreased (hypoperfusion)
20. Hepatic fibrosis marker abnormal
21. Hepatic hydrothorax
22. Hepatic hypertrophy
23. Hepatic lymphocytic infiltration
24. Hepatic mass
25. Hepatic sequestration

26. Hepatic vascular resistance, venous pressure increased
27. Hepatitis, alloimmune (potential for liver transplant rejection)
28. Hepatomegaly, hepatosplenomegaly
29. Herpes gastritis
30. Hypercholia (increased bile) and hypocholia (decreased bile secretion)
31. Cholestasis, immune-mediated
32. Inflammatory bowel disease
33. Liver sarcoidosis
34. Lupoid hepatic cirrhosis
35. MELD score increased (Model for End-Stage Liver Disease score; useful in prioritizing for receipt of a liver transplant)
36. Oral lichen planus
37. Pancreatitis, immune-mediated
38. Portal pyemia
39. Proctitis ulcerative
40. Pyostomatitis vegetans
41. Tongue amyloidosis
42. Retrograde portal vein flow

Gender and Reproduction-Related:

1. Oophoritis: non-infective; autoimmune oophoritis (inflammation); ovarian autoimmunity (autoimmune-mediated inflammation of the ovaries)
2. Orchitis, autoimmune orchitis (inflammation); testicular autoimmunity
3. Ovarian vein thrombosis (clot in the veins that drain the ovaries)
4. Menopause, premature

Hematology and Hemostasis (clotting):

1. Agranulocytosis, B-cell aplasia
2. Anemias: aplastic, cold-type hemolytic, coombs hemolytic, cryoglobulin, Pernicious,
3. Decreases in other blood cells (the '-penias'; see 'cytopenia', 'leukopenia', and 'pancytopenia'): basophils; eosinophils; granulocytes (adult and neonatal); lymphocytes (adult and neonatal); monocytes; neutrophils (febrile, adult, neonatal); thrombocytes (platelets), immune thrombocytopenia; transfusion-related alloimmune neutropenia
4. Cryofibrinogenaemia
5. Disseminated intravascular coagulation, adult and newborn
6. Evans syndrome - otherwise rare; immune system produces antibodies that mistakenly destroy red blood cells, platelets, and sometimes the white blood cell known as neutrophils.

7. Haemophagocytic lymphohistiocytosis (histiocytosis is an otherwise rare group of diseases characterized by excess histiocytes).
8. HypoxiaIdiopathic CD4: Otherwise rare CD4+ lymphocytopenia. Sometimes characterized as "HIV-negative AIDS".
9. Infantile genetic agranulocytosis
10. Intrinsic factor: antibody abnormal and IPEX syndrome (otherwise extremely rare genetic disease of immune dysregulation that causes eczema, diabetes, and diarrhea).
11. Type III immune complex-mediated reaction

Immunology:

1. Complement factor decreased (C1-C4)
2. Cytokine storm (“inflammatory cytokine syndrome”)
3. Gammaglobulinaemia (hyper and hypo)
4. Immunoglobulin G4-related disease
5. Linear IgA disease

Infectious Disease:

1. Abscess, lung
2. Bronchopulmonary mycosis
3. Herpes simplex: reactivation; genital herpes; dermatitis, disseminated neonatal, gestationis, oesophagitis, pharyngitis, sepsis/viremia, cervicitis, cervicitis, colitis, conjunctivitis neonatal, encephalitis, gastritis, hepatitis, lower respiratory tract, meningitis, meningoencephalitis (adult and neonatal), meningomyelitis, nasal, necrotizing retinopathy, neonatal mucocutaneous, oesophagitis, ophthalmic, oral, otitis externa, pharyngitis, proctitis,
4. Herpes zoster (shingles): reactivation, disseminated, hemorrhagic varicella syndrome, oticus, cutaneous, necrotizing, pharyngitis, genital, meningitis, menigomyelitis, meningoencephalitis, meningoradiculitis, Ramsay Hunt syndrome (painful rash around the ear, or mouth; occurs when the varicella-zoster virus infects 7th cranial nerve, the facial nerve)
5. Herpetic radiculopathy
6. Human herpesvirus 6, 7, 8: infection, reactivation, and encephalitis
7. Influenza
8. JC virus: a neutropenic polyomavirus; the cause of progressive multifocal leukoencephalopathy (PML), an otherwise rare, fatal, demyelinating disease of CNS; occurs in immunocompromised hosts.
9. Lemierre syndrome (Fusobacterium necrophorum)
10. Limbic encephalitis
11. Metapneumovirus infection

12. Middle East respiratory syndrome (MERS), caused by coronavirus MERS-CoV.
13. Osteomyelitis, recurrent, multifocal
14. Parainfluenza, with viral laryngotracheobronchitis
15. Pneumonia types: Adenoviral atypical, cytomegaloviral, enterobacter, herpes simplex, hantavirus, measles, mycoplasma, respiratory syncytial viral; interstitial, miliary, necrotizing, neonatal, paracancerous
16. Post viral fatigue syndrome (chronic fatigue syndrome/ME-CFIDS).
17. Respiratory syncytial virus bronchiolitis
18. Sepsis, neutropenic
19. Septic infarcts: cerebral
20. Tracheobronchitis: Mycoplasmal, viral

Nephrology (Renal):

1. Acute kidney injury
2. Amyloidosis (renal)
3. Complex Tubulointerstitial nephritis and uveitis syndrome
4. Dialysis-related amyloidosis (DRA): disabling disease from the accumulation of amyloid fibrils consisting of beta2-microglobulin (beta2-m) in the bone, periarticular structures, and viscera of patients with chronic kidney disease (CKD).
5. Embolism (clot to the kidney via renal artery)
6. Failure (renal failure)
7. Glomerular basement membrane disease
8. Glomerulonephritis: acute and chronic; auto-immune, fibrillary, membranoproliferative, rapidly progressive
9. Mesangial proliferative glomerulonephritis
10. Nephritis: immune-mediated and HenochSchonlein purpura nephritis
11. Nephropathies: C1q, IgA, and IgM
12. Paroxysmal nocturnal hemoglobinuria
13. Renal artery: arteritis, thrombosis
14. Renal vein: embolism, thrombosis
15. Scleroderma renal crisis
16. Vasculitis (renal vasculitis)

Neurology:

1. Ageusia and anosmia (loss of sense of smell and taste)
2. Amnesia, transient epileptic
3. Aphasia acquired epileptic
4. Ataxia
5. Autonomic nervous system imbalance

6. Brain stem embolism (acute stroke to the brainstem)
7. Bulbar palsies: from brain stem stroke, auto-immune (GBS), degenerative (ALS).
8. Cataplexy (sudden loss of muscle tone while awake)
9. Cogan's syndrome: an autoimmune inflammatory disease with bilateral sensorineural hearing loss, vestibular symptoms, and ocular manifestations.
10. Cranial nerve palsies/paresis/paralysis: 2nd cranial nerve (optic nerve, see Ophthalmology), 3rd (oculomotor nerve), 4th (trochlear), 5th (trigeminal), 7th (facial; see Ramsey Hunt syndrome), 9th (glossopharyngeal), 12th (hypoglossal)
11. CSF oligoclonal banding (inflammatory proteins)
12. Drop attacks (sudden falling without loss of consciousness)
13. Encephalitis (brain inflammation), myelitis (spinal cord inflammation), and encephalomyelitis (inflammation of both brain and spinal cord): immune-mediated/non-infective; panencephalitis; hemorrhagic leukoencephalitis; with flaccidity; refractory; encephalitis periaxialis diffusa; Rasmussen encephalitis (otherwise very rare inflammation of one side of the brain); Bickerstaff's encephalitis (otherwise rare auto-immune attack on the peripheral and central nervous system
14. Encephalopathy: with burst-suppression; infantile; leukoencephalopathy; toxic leukoencephalopathy
15. Facial paralysis/paresis: See Cranial Nerves and Infectious Disease (Ramsey-Hunt Syndrome)
16. Grey matter heterotopia
17. Intracranial pressure increased
18. Lymphocytic inflammation with pontine perivascular enhancement responsive to steroids
19. Marchiafava-Bignami disease (MBD): an otherwise rare condition characterized by demyelination of the corpus callosum. Seen most often clinically in chronic alcoholism.
20. Meningitis, aseptic
21. Miller Fisher syndrome (otherwise rare auto-immune nerve disease after viral illness considered to be a variant of Guillain-Barré syndrome, with ataxia, ophthalmoplegia, and absence of tendon reflexes. In most cases, anti-GQ1b antibody is identified.
22. Morvan syndrome or Morvan's fibrillary chorea (MFC): Otherwise rare, consisting of peripheral nerve hyperexcitability, autonomic instability, and encephalopathy often associated with autoantibodies to voltage-gated potassium channel complexes (VGKCs).
23. Moyamoya disease: Otherwise rare, progressive cerebrovascular disorder caused by blocked arteries of basal ganglia.

24. Multiple sclerosis: primary, progressive, relapsing, relapsing-remitting, secondary progressive; Marburg's variant MS; Tumefactive MS (an otherwise rare form of MS with tumor-like lesions on brain scans).
25. Myasthenia gravis and crisis: neonatal and adult; myasthenic syndrome
26. Myelitis, non-infectious: Guillain-Barre syndrome (transverse myelitis): inflammation of the spinal cord which interrupts the messages that the spinal cord nerves send throughout the body.
27. Narcolepsy
28. Neuralgic amyotrophy (an otherwise rare disorder of the peripheral nervous system, with sudden onset of extreme pain in the upper extremities followed by rapid multifocal motor weakness and atrophy and a slow recovery in months to years).
29. Neuritis and neuropathies (acute and subacute): immune-mediated/inflammatory, peripheral, polyneuropathy (progressive), acoustic neuritis, axonal, angiopathic, cranial, demyelinating polyneuropathy, demyelinating polyradiculoneuropathy, glycoprotein-associated polyneuropathy, multifocal motor, demyelinating polyneuropathy, mononeuritis mononeuropathy, motor axonal neuropathy, motor-sensory axonal neuropathy, myelin-associated polyneuropathy, optic neuritis (see Ophthalmology).
30. Neuromyotonia
31. Neurosarcoidosis
32. Osmotic demyelination syndrome
33. POEMS syndrome (paraneoplastic syndrome caused by aberrant plasma cells)
34. Paralysis, postical
35. Progressive multifocal leukoencephalopathy (otherwise rare brain infection from the John Cunningham virus - from ‘weakened immune system’).
36. Psychosis, postictal
37. Radiculitis, brachial
38. Rheumatic brain disease
39. Seizure-related: aura, epileptic automatism (clouding of consciousness during and after seizures); epileptic psychosis
40. Seizures/epilepsy/convulsions: anoxic, atonic; atypical partial; autonomic (may have various cardiac, skin, GI, GU and ophthalmologic signs and symptoms); Baltic myoclonic; cluster; CSWS syndrome (otherwise rare, childhood seizure disorder with continuous epileptiform spikes and waves during sleep and associated with neurocognitive regression); faciobrachial dystonic; febrile, focal; focal dyscognitive; frontal lobe; gelastic; generalised onset non-motor, and generalized tonic-clonic; hypocalcemic; hypoglycemic and hyperglycemic; Jeavons Syndrome (a type of epilepsy); Lennox-Gastaut syndrome (otherwise rare, complex and severe childhood epilepsy); myoclonic; myoclonic-atonic;

juvenile myoclonic; Lafora's myoclonic epilepsy; migraine-triggered; myoclonic epilepsy and ragged-red fibres (MERRF, otherwise extremely rare, affecting the nervous system, skeletal muscles and other body systems); neonatal; neonatal and childhood convulsions; partial; repetitive partial; neuromyelitis optica spectrum disorder (see Ophthalmology); Rolandic; partial with secondary generalisation; petit mal; post-stroke; simple partial; status epilepticus; sudden unexplained death in epilepsy; temporal lobe epilepsy;

41. Senile amyloidosis
42. Stiff leg syndrome (usually starts in one leg and may progress to both).
43. Stiff person syndrome (an otherwise rare autoimmune condition with fluctuating muscle rigidity in the trunk and limbs and a heightened sensitivity to stimuli such as noise, touch, and emotional distress which can all set off muscle spasms). High antiGAD antibodies are associated with the stiff-person syndrome (60% sensitivity). Also, see AntiGAD and insulin-dependent diabetes.
44. Strokes, thrombotic: cerebral and cerebellar (see Vascular)
45. Tonic posturing
46. Trigeminal neuralgia
47. Uhthoff's Phenomenon (worsening of symptoms related to demyelination disorder such as MS when the body is overheated).

Neurosurgery (performed to relieve patients of medically refractory seizures):

1. Amygdalohippocampectomy
2. Corpus callosotomy
3. Focal cortical resection
4. Topectomy (excision of selected portions of the frontal cortex)

Obstetrics:

1. Amniotic cavity infection
2. Eclampsia and pre-eclampsia
3. Fetal death
4. Fetal growth restriction
5. Premature birth with neonatal death
6. Premature labor
7. Premature rupture of membranes,
8. Pulmonary embolism in pregnancy (see Vascular)
9. Spontaneous abortion, with intrauterine death and with neonatal death
10. Stillbirth
11. Thromboses: fetal placental; umbilical cord; postpartum venous thrombosis (see Vascular)
12. uterine contraction during pregnancy

Oncology:

1. Kaposi sarcoma
2. Tumor embolism (tumors in sufficient numbers or size to resemble pulmonary embolism)
3. Tumour thrombosis (tumor extension into a vessel)

Ophthalmology:

1. Birdshot chorioretinopathy
2. Endocrine ophthalmopathy: Inflammation of the eyes leads to periorbital edema, congestion, and swelling of the conjunctiva), proptosis (anterior displacement of the eye), extraocular muscle involvement leading to double-vision (diplopia), corneal lesions, and compression of the optic nerve. Eg, Graves Disease.
3. IRVAN Syndrome: Otherwise rare "idiopathic retinal vasculitis-aneurysms-neuroretinitis syndrome"; the severe form may progress to vitreous hemorrhage (leakage of blood into the eye), vision loss, and/or glaucoma.
4. Kayser-Fleischer ring (excess copper deposits to the cornea)
5. Myokymia (eyelid twitching).
6. Neuromyelitis optica, pseudo, and spectrum disorder
7. Ocular myasthenia
8. Ocular pemphigoid
9. Ocular sarcoidosis
10. Ocular vasculitis
11. Oculofacial paralysis
12. Ophthalmic vasculopathies:
    a. Ophthalmic artery and vein: thrombosis
    b. Retinal artery and vein: thrombosis, embolism, occlusion
13. Ophthalmic herpes:
    a. Herpes simplex; herpes simplex conjunctivitis neonatal (see Infectious Disease)
    b. Herpes zoster
14. Optic nerve: neuritism, neuritis, neuropathy, and perineuritis
15. Optic neuropathy
16. Papillophlebitis
17. Retinitis pigmentosa syndrome
18. Retinopathy; acute outer retinopathy; necrotizing herpetic retinopathy; post-thrombotic retinopathy (may result in detached retina)
19. Scleritis, rheumatoid scleritis

20. Susac's syndrome (autoimmune attack on the endothelium of the vessels supplying blood to the brain, retina, and inner ear).
21. Sympathetic ophthalmia (otherwise rare inflammation of the uvea, with granulomatous formations).
22. Uveitis, immune-mediated

Orthopedics (musculoskeletal adverse events):

1. Juvenile polymyositis (causes muscle weakness)
2. Myositis: immune-mediated; inclusion body myositis
3. Polymyositis
4. Satoyoshi Syndrome (progressive muscle spasms).

Pediatrics:

1. Enterocolitis, infantile ('autoinflammation')
2. Fetal distress syndrome
3. Hemimegalencephaly: Otherwise rare congenital disorder affecting all or a part of a cerebral hemisphere. It causes severe seizures, which are often frequent and hard to control. Most will need removal or disconnection of the affected hemisphere as the best chance for seizure control. Uncontrolled, they often cause progressive intellectual disability and brain damage and stop development.
4. Infections, congenital: herpes simplex, varicella
5. Kawasaki disease (inflammation of arteries, including coronary arteries).
6. Lewis-Sumner syndrome (inflammatory demyelinating polyneuropathy)
7. Low birth weight baby
8. Lupus erythematosus, neonatal
9. Multisystem inflammatory syndrome in children
10. Myasthenic syndrome, congenital
11. Myoclonic epilepsy of Infancy, severe (see Neurology)
12. Neuropsychiatric disorders (autoimmune) associated with streptococcal infection
13. Perisylvian syndrome, congenital, bilateral
14. Polymicrogyria (abnormal brain development in utero)
15. Poor feeding infant
16. Schizencephaly (abnormal slits in cerebral hemispheres formed congenitally).
17. Spasms, infantile
18. Thrombophlebitis neonatal

Plastic Surgery/Cosmetics: Progressive facial Hemiatrophy

Psychiatry/Psychology:

1. Deja vu

2. Neuropsychiatric lupus

Pulmonology:

1. Acute respiratory distress syndrome
2. Alveolar proteinosis
3. Amyloidosis, pulmonary
4. Bronchial edema
5. Caplan's syndrome (rheumatoid pneumoconiosis)
6. Embolism: septic, thrombotic (see Vascular), microembolism, oil microembolism
7. Fibrosis, pulmonary
8. Goodpasture's syndrome: autoimmune attack of lungs and kidneys.
9. Hemorrhage, pulmonary
10. Immune-mediated pneumonitis
11. Interstitial lung disease
12. NutropeniaIdiopathic pulmonary fibrosis
13. Pleuroparenchymal fibroelastosis
14. Pneumobilia
15. Pneumonia (see Infections Disease for infectious pneumonias): Embolic pneumonia, hemorrhagic pneumonia
16. Pulmonary renal syndrome
17. Pulmonary tumor thrombotic microangiopathy
18. Respiratory failure, acute and chronic
19. Respiratory paralysis
20. Rheumatoid lung
21. Sarcoidosis, pulmonary
22. Severe acute respiratory syndrome (SARS)
23. Shrinking lung syndrome (an otherwise rare complication of lupus).
24. Thrombosis, pulmonary artery, and vein (see Vascular)
25. Vasculitis, pulmonary
26. Veno-occlusive disease, pulmonary

Rheumatology:

1. Arthritis (adult and juvenile; arthralgia, see Signs and Symptoms): enteropathic, rheumatoid, lupus (SLE), psoriatic, spondyloarthritis (axial),
2. Arthropathy, amyloid
3. Chronic fatigue syndrome
4. CREST syndrome - multisystem connective tissue disorder with calcinosis, Raynaud's phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia
5. Enteropathic spondylitis

6. Fasciitis, eosinophilic
7. Felty's Syndrome: An otherwise rare autoimmune disease characterized by rheumatoid arthritis, enlargement of the spleen, and low neutrophil count.
8. Fibromyalgia
9. Giant cell arteritis
10. LE (lupus erythematous cells = Hargraves cells): present
11. Lupus erythematosus, lupus-like syndrome, and lupus-associated associated: acute, subacute, and chronic; arthritis, CNS (central nervous system lupus), cutaneous (acute), lupus cystitis, encephalitis, endocarditis, enteritis, hepatitis, myocarditis, myositis, nephritis, pancreatitis, peritonitis, pleurisy, pneumonitis, vasculitis.
12. MAGIC syndrome: "mouth and genital ulcers with inflamed cartilage" syndrome. Characteristic of both Behçet syndrome and relapsing polychondritis.
13. Mixed connective tissue disease
14. Palindromic rheumatism
15. Polyarthritis
16. Polychondritis
17. Polymyalgia rheumatica
18. Psoriatic arthropathy
19. Raynaud's phenomenon
20. Rhematiod factor elevated (quantitative)
21. Rheumatoid nodule and removal
22. Sarcoidosis, muscular
23. Scleroderma, systemic
24. Sjogren's syndrome
25. Spondylitis, spondyloarthropathy, ankylosing spondylitis
26. Still's disease (systemic idiopathic juvenile arthritis)
27. Systemic lupus erythematosus disease activity index increased
28. Systemic sclerosis

Surgery:

1. Fibrosis, retroperitoneal
2. Graft thrombosis
3. Injection and infusion site vasculitis and thrombosis
4. Multiple subpial transection (MST): Cutting the nerve fibers in the gray matter of the brain to stop seizures (see Seizures)
5. Postoperative respiratory distress and failure
6. Thromboses (see Vascular): catheters, fistulas implant site, in medical device, at medical device site, stoma site, truncus coeliacus (otherwise rare cause of bowel infarction, ischemia, and abdominal pain), postoperative.

7. Vasculitis: device site, stoma site

Urology: Interstitial cystitis

Vascular:

1. Air/gas embolism (macro and micro): cerebral,
2. Amyloid angiopathy: Cerebral (“Hey, isn’t amyloid what causes Alzheimer’s?”).
3. Behcet's syndrome (autoimmune, auto-inflammation of the blood vessels anywhere in the body).
4. Blue toe syndrome (acute digital ischemia)
5. Cerebrospinal thrombotic tamponade
6. Collagen-vascular disease
7. Embolia cutis medicamentosa
8. Embolism (arterial and venous): cement embolism; fat; femoral artery; iliac artery; jugular vein; mesenteric artery; microembolism; portal vein; pulmonary; septic, splenic vein; subclavian artery; spinal artery;
9. Histone antibody Hoigne's syndrome (embolic toxic reactions possibly due to vascular occlusion by large crystals of penicillin).
10. Hypothenar Hammar syndrome: vascular occlusion of ulnar artery as it passes over the hamate bone.
11. Microangiopathy
12. Paget-Schroetter Syndrome (thrombosis subclavian vein at costovertebral junction)
13. Polyangitis: granulomatous, eosinophilic granulomatosis, microscopic
14. Polyarteritis nodosa (otherwise rare diffuse inflammation of the arteries)
15. Portal vein flow decreased
16. Reactive capillary endothelial proliferation
17. SAPHO Syndrome (otherwise rare synovitis, osteitis, hyperostosis, and enthesitis).
18. Takayasu's arteritis (An otherwise rare form of auto-immune vasculitis involving inflammation in the walls of the largest arteries in the body: the aorta and it’s main branches).
19. Thrombophlebitis, migrans, septic and superficial, obliterans (Buerger disease: small blood vessels become inflamed, swollen, and blocked by blood clots, with vessels of the hands and feet are mostly affected.
20. Thromboplastin antibody thrombosis (antiphospholipid syndrome)
21. Thromboses: brain stem, corpora cavernosa, deep vein thrombosis (DVT), infective, paraneoplastic, pelvic venous, penile vein, jugular vein, mesenteric vessel, portosplenomesenteric vein, precerebral artery, portal vein, mesenteric

artery and vein; spinal artery, splenic artery, subclavian artery and vein, transverse sinus, superior sagittal sinus,

22. Thrombotic microangiopathy
23. Vasculitis (diffuse inflammation of the arteries/arterioles, veins/capillaries associated with thromboses and emboli): aorta, axillary vein, basilar artery, brachiocephalic vein, cerebral artery, carotid artery, cavernous sinus, cerebellar artery, cerebral venous sinus, CNS, neutrophil cytoplasmic antibody vasculitis, hemorrhagic, hypersensitivity vasculitis, infective, nodular, rheumatoid, segmented hyalinising,