CARING FOR PATIENTS ON BIOLOGICS

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DISCLOSURES

- None

WHAT ARE BIOLOGICS?

- A biologic drug (biologics) is a product that is produced from living organisms or contain components of living organisms.
- The biologics, that we typically think about, are genetically engineered proteins that target specific parts of the immune system that lead to inflammation

TYPES OF BIOLOGICS

- **Tumor Necrosis Factor-α (TNF) Inhibitors**
  - adalimumab (*Humira*), cerolizumab (*Cimzia*), etanercept (*Enbrel*), golimumab (*Simponi*), and infliximab (*Remicade*)
- **B-Cell Inhibitors**
  - belimumab (*Benlysta*) and rituximab(*Rituxan*)
- **Interleukin Inhibitors**
  - anakinra (*Kineret*), canikumab (*Ilaris*), ixekizumab (*Taltz*), sarilumab (*Kevzara*), secukinumab (*Cosentyx*), tocilizumab (*Actemra*) and ustekinumab (*Stelara*)
- **Anti Integrin antagonists**
  - natalizumab (Tysarbi), vedolizumab (Entyvio)
- **Selective Co-stimulation Modulators**
  - abatacept (*Orencia*)

ISSUES IN THE CARE OF PATIENTS ON BIOLOGICS

- Infusion reactions
- Infection risk
- Side effects
- Cancer risk
- Pregnancy related issues

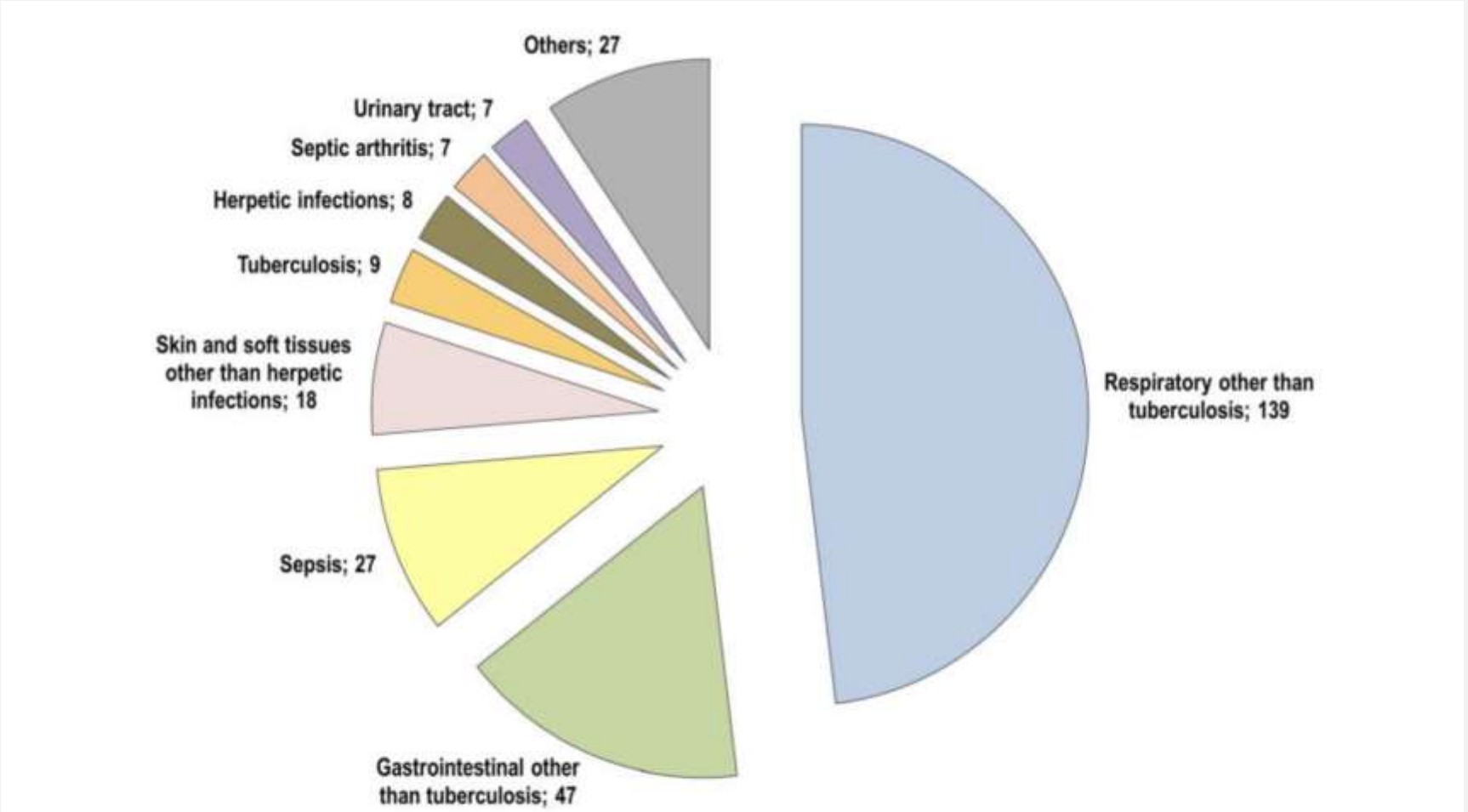
INFUSION REACTIONS

- Infusion reactions can occur with all biologics but are more common with anti-TNF biologics such as infliximab
- Mild allergic reactions are common causing redness, itchiness, and/or warm and tender skin around the injection site. More severe allergic reaction with trouble breathing, chills, redness, and/or itchiness and even anaphylactic shock can be seen.
- To decrease these reactions, the infusion of infliximab is given over 3 hours and later accelerated to 1 hour once the patient is shown not to have an infusion reaction.
- Premedication with IV steroids and Benadryl can be given to decrease the risk of infusion reactions. Some physicians prescribe it routinely and others after a reaction.

RISK OF INFECTION

- **Common infections.** upper respiratory infections, pneumonia, urinary tract infections, and skin infections.
- **Opportunistic infections.** Hepatitis B, Tuberculosis (TB), and fungal infections such as histoplasmosis.
- The global risk of newer biologics are less than with anti-TNF
- The risk is increased in elderly. Patients over age 65 have a 4 fold increase over patients less than 40.
- The concomitant use of steroids, NSAIDs and other immunomodulators increase the risk further

HOSPITALIZED INFECTIONS



Hospitalized infections in the cohort of 6801 Italian patients with rheumatoid arthritis, psoriatic arthritis/severe psoriasis, or ankylosing spondylitis from 2006 to 2017.

J Adv Res. 2019 Jan; 15: 87

INFECTION RISK

- To decrease the risk of TB, all patient undergo testing for for TB with both a tuberculin skin test and a Interferon-Gamma Release Assays (IGRAs) before starting a biologic
- Patients who are positive need to initiate anti- TB treatment before starting the biologic
- Hepatitis B status is tested as well and if the patient is a chronic carrier, antiviral treatment is given. Vaccination for HBV is recommended

VACCINATION

- Vaccination history should be reviewed to be sure all childhood vaccinations are up to date. Any needed live vaccines should be given before the biologic is started usually at least 1 month prior
- In addition, vaccination for pneumonia (Prevnar and Pneumovax) along with yearly influenza vaccine is recommended.
- Shingles is common with biologics especially with tofacinitib (Xeljanz) so it is recommended to administer the Shingrix vaccine
- HPV vaccination is recommended as well

WHAT IF PATIENT HAS AN INFECTION?

- For minor infections there is no need to hold an infusion especially if the patient is already improving with or without antibiotic treatment
- For major infections, the next infusion should be held until there is resolution of the infection.

LUPUS-LIKE SYNDROME

- Anti- TNF biologics can cause a drug induced lupus with classic symptoms of myalgias, arthralgias, malar rash, serositis, and photosensitivity
- It is diagnosed typically by positive ANA and Anti-dsDNA
- Usually the syndrome resolves gradually but occasionally corticosteroids will be needed

OTHER SIDE EFFECTS

- Anti-TNF have been shown to cause arthritis and psoriasis
- Anti-TNF can worse congestive heart disease in patients with a cardiomyopathy
- Anti-TNF have also been shown to cause peripheral neuropathy

HAIR LOSS

- Hair loss is an uncommon but potentially distressing side effect of biologics most commonly the anti-TNF
- It could also be caused by the acute inflammation of the autoimmune disease
- Typically the hair loss recovers after stopping the medication

CANCER RISK

- The main concerns are about lymphoma and melanoma
- Although there is likely an increased risk the risk overall is small
- There does not appear to be any increased risk for solid cancers

PREGNANCY

- Anti- TNF biologics have been shown to be safe in pregnancy and breast feeding and woman are encouraged to continue them to maintain remission.
- Infants exposed to anti-TNF in utero should not be given a live vaccine till after 6 months of age
- Other biologics appear safe but lack the same level of evidence. Tofacinitib (Xeljanz), an oral JAK inhibitor, is a small molecule that has been shown to cause some birth defects in rat models but no human cases have been seen
- Breastfeeding is safe as well