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Recommended Citation
Vigil, Ana, "Rheumatoid Arthritis" (2018). Nursing Student Class Projects (Formerly MSN). 290.
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**Rheumatoid Arthritis**

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**Introduction**

The topic of Rheumatoid arthritis (RA) is critical as this disease process affects up to 1% of the U.S. population, resulting in disability and early mortality (Mayo Clinic, 2017). Advanced practice providers (APPs) are often the first to diagnose and treat RA early on before damage to patient’s joints occurs (Riley et al., 2017).

As of 2017, there is an anticipated increase in the number of years over the next decade for health care professional to be able to design and develop treatment plans for patients with RA (Barton et al., 2017).

Finally, it has been shown that failing to recognize early or more insidious symptoms can lead to referral delays and referral difficulty in a Rheumatologist and initiation of treatment (Riley et al., 2017).

Over the past 20 years, more than 10 new medications for RA have been developed and approved by the FDA. These new drugs have improved outcomes for patients diagnosed with RA, but can cause decisions about treatment plans to be more complex (Mayo Clinic, 2017).

As a future Nurse Practitioner (NP), there is a high likelihood of encountering and diagnosing patients with this disease process.

**About RA**

RA is an immune-mediated inflammatory disease where your immune system attacks the lining of your joints causing swelling and inflammation (Barton et al., 2017). RA typically affects the small joints in your hands, wrists, knees, and the base of your spine (Huether & McCance, 2008).

The synovial joints affected are usually symmetric in presentation and when palpated are warm and feel rough, causing a rough, gritty sensation and thin and shiny skin (Huether & McCance, 2008).

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One of these other factors is a bacterial or viral infection that triggers an inflammatory response, or modifiable risk factors such as cigarette smoking (Richards & Riley, 2013) or obesity (Bingham, 2013).

**Signs & Symptoms**

Rheumatoid arthritis (RA) is a complex disease process that can be characterized as an immune mediated inflammatory disease (Bingham, 2015). With normal antibody response (Huether & McCance, 2008), it is not known the exact trigger that induces a RA autoimmune response (Huether & McCance, 2008).

- Fever
- Fatigue
- Weakness
- Anorexia
- Weight loss
- Generalized aching and stiffness

Early on in the disease process occurs mainly from the pressure created from swelling (Huether & McCance, 2008). Later on in the disease process, pain occurs from abnormal handing of body tissue (cellulitis) of the subcutaneous (layer of body just below the cartilage in a joint) bone and new bone formation (Huether & McCance, 2008).

The synovial joints affected are usually symmetric in presentation and when palpated are warm and feel rough, causing a rough, gritty sensation and thin and shiny skin (Huether & McCance, 2008).

**Pathophysiology**

RA is a complex disease process that can be characterized as an immune-mediated inflammatory disease (Bingham, 2015). With normal antibody response (Huether & McCance, 2008), it is not known the exact trigger that induces a RA autoimmune response (Huether & McCance, 2008).

In the immunologic response occurs, the patient’s immune system begins to recognize the host’s self-antigens as foreign (Huether & McCance, 2008).

Consequently, there is some data that suggests the gene HLA-DR4 is involved (Bingham, 2013). There is some data that suggests the gene HLA-DR4 is involved (Bingham, 2013).

Even with some research that points to a genetic cause of RA, there has not been compiled that supports a specific trigger for the initiation of RA, pointing to other factors in the disease development (Barton et al., 2016).

One of these other factors is a bacterial or viral infection that triggers an inflammatory response, or modifiable risk factors such as cigarette smoking (Richards & Riley, 2013) or obesity (Bingham, 2013).

**Pathophysiology continued**

The damage occurs primarily from these functions:

1. Macrophages, neutrophils and other phagocytes in the synovial fluid become activated, destroying the cartilage (Bingham, 2013).

2. Cytokines stimulate synthesis of proinflammatory compounds. Many cytokines are involved in the cascade outlined in the pathophysiology section.

- Macrophages recruit other inflammatory cells.
- Autoantibodies such as rheumatoid factor and anti-cyclic citrullinated peptide (ACP) provide a key role in the pathophysiology section.

Biologic DMARDs are targeted for treatment of patients with RA who are not responding to traditional DMARD therapy. Biologic DMARDs are TNF inhibitors which have shown to be effective in preventing joint damage and halting the inflammatory response (Richards & Riley, 2013).

As stated by Palmer and Medsger (2013), “Enhanced understanding of the pathophysiology of RA is so vital to NPs and APPs who will develop treatment plans for these patients.”

**Significance of Pathophysiology**

Understanding of the pathophysiology of RA is essential to NPs and APPs who will develop treatment plans for these patients.

**Implications for Nursing**

The role of NPs in managing and diagnosing patients with RA is expected to increase over the next 10-20 years (Biley et al., 2017). Yet a survey conducted by Biley et al. (2017), showed that NPs had a low to moderate level of confidence when diagnosing RA and a low level of confidence in managing and supporting treatment of patients with RA. This is concerning as NPs working in primary care may potentially be the first line for diagnosis of these patients.

This knowledge gap shows that increased training and education in RA could help improve NPs awareness of the signs and symptoms of RA, leading to an earlier initiation of treatment or referral to a Rheumatologist (Riley et al., 2017).

As this disease process is incurable, it is also important for nurses to consider the emotional impact that RA takes on their patient’s care, as it previously, causes pain, deformity, fatigue and decreased physical function. These symptoms can cause emotional burden to patients, and it is crucial for nurses to assess the health-related quality of life (HRQL) of their patients when assessing treatment efficacy (Strand, Wientz, Bergman, Tarnish & Taylor, 2015).

**Conclusion**

Rheumatoid Arthritis is an immune-mediated inflammatory disease of unknown etiology. The disease process primarily affects the synovial joints of the hands and feet and is presented in a symmetrical fashion. (Rheumatoid Arthritis, 2014). The presence of an autoantibody in the early disease process can cause joint pain, swelling and if left untreated deformity. Studies have shown that early intervention is critical for patients receiving optimal outcomes (Rheumatoid Arthritis, 2017).

Nurse Practitioners, especially in the primary care setting, will potentially be first line access to a healthcare provider and can be the first provider to diagnose patients who are newly diagnosed or have established RA (Biley et al., 2017). Education in RA and RA treatment is important for NPs in optimizing the management of RA. Overall, RA is an insidious disease process, which can not be prevented but can be managed to prevent long-term disability and improved patient outcomes.

**References**

- Bingham, C. A. (2013). "Enhanced understanding of the pathophysiology of RA is so vital to NPs and APPs who will develop treatment plans for these patients."" Journal of the American Society of Nurse Practitioners, 25(9), 394-399.