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Commentary

Pathophysiology Involved in Crohn's Disease

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DESCRIPTION

It is an idiopathic, chronic, transmural inflammatory process of the bowel that can affect any part of the gastrointestinal tract from the mouth to the anus. Both males and females are equally affected to this disease. Gastrointestinal symptoms include abdominal pain, diarrhea, bloating, perianal discomfort, etc. Mouth may be affected by non-healing sores and difficulty in swallowing. People with extensive small intestine disease also have malabsorption of carbohydrates or lipids, which leads to weight loss. This also causes the increased risk of blood clots, pulmonary embolism and autoimmune hemolytic anemia.

Causes

Mutations in *NOD2/CARD15* gene are associated with crohn's disease. Over 30 genes show that genetics play a role in the disease either directly or indirectly. Anomalies in the *XBP1* gene have recently been identified as a factor. It is thought to be an autoimmune disease with inflammation stimulated by an over-active Th1 cytokine response.

Scientists have suggested that *Mycobacterium avium* subspecies paratuberculosis (MAP) were identified in patients with this disease. Psychrotropic bacteria such as *Yersinia* species and *Listeria* species contribute to crohn's disease.

Classification of crohn's disease

Based on the area of gastrointestinal tract, classified as:

Ileocolic crohns disease: Affects both the ileum and the large intestine.

Crohns ileitis: Affects only ileum.

Crohns colitis: Affects the large intestine.

Based on the behavior of the disease as it progresses, classified as:

Stricturing: Disease causes narrowing of the bowel which may lead to bowel obstruction.

Penetrating: Disease creates abnormal passage ways between the bowel and other structures such as skin.

Inflammatory: Disease causes inflammation without causing strictures or fistulae.

Diagnosis

Colonoscopy is 70% effective in diagnosing the disease *via* direct visualization of the colon and the terminal ileum. Capsule endoscopy helps in endoscopic diagnosis. Radiologic tests such as barium X-ray test are performed to diagnose the condition. Erythrocyte Sedimentation Rate (ESR) and C-reactive protein measurements can also be useful to check the degree of inflammation. Testing for Anti-*Saccharomyces cerevisiae* Antibodies (ASCA) and Anti-Neutrophil Cytoplasmic Antibodies (ANCA) has been evaluated to identify inflammation of the intestine.

Treatment

Treatment can be given only when the symptoms are active. Antibiotics are used to reduce inflammation. Prolonged use of corticosteroids also has significant role. Alternatives include aminosalicylates alone, though only a minority are able to maintain the treatment and many require immunosuppressive drugs. Drugs such as 5-aminosalicylic acid, prednisone, methylprednisolone are used. Immunomodulators such as azathioprine, mercaptopurine, methotrexate, infliximab, adalimumab are used. Hydrocortisone should be used in severe attacks of crohn's disease.

Complications

Cells in the lining of the intestine are shed which leads to ulcers and are most common in ileum, colon or rectum. Ulcers can be serious if they go through the intestines and damage an artery which finally leads to life-threatening bleeding. The most common complication is blockage of intestine known as bowel obstruction, which occurs due to the swelling of the intestinal wall. This may increase the risk of developing cancer. Toxic megacolon is one of the most serious complications of crohn's disease which occurs when the large intestine stops working and expands suddenly. This leads to excessive loss of blood or even rupture. Due to low calcium intake and poor absorption of thenutrients in the body, people with crohn's disease may develop osteoporosis.Hippocratic fingers can also be a result of crohn's disease.

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