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Advanced Techniques for treatment of Gastrointestinal Cancer

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Short Commentary

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ABSTRACT

Stomach cancer is generally called gastric cancer. It is one of the most common cancers found worldwide. It is common in Japan and China but is less common in the UK. About 5,000 people develop stomach cancer each year in the USA. Stomach cancer is more common in older men than in older women. Most people who develop stomach cancer are aged people. There are three types of Gastric Cancer. They are Lymphomas (lymphatic tissue), Sarcomas (connective tissue and Carcinoid cancers (cells of the stomach that synthesize hormones). Lack of Vitamin B 12 causes pernicious anemia. Chain smokers are majorly affected with stomach cancer.

INTRODUCTION

Cancer [1-3] is of many types: Breast Cancer, Cancer in Adolescents, Cancer in Children, Cancer in Young Adults, Cervical Cancer, Adrenal Cancer, Anal Cancer, Bile Duct Cancer, Bladder Cancer, Bone Cancer, Colon/Rectum Cancer, Endometrial Cancer, Esophagus Cancer, Eye Cancer, Gallbladder Cancer, Gastrointestinal Carcinoid cancer, Gastrointestinal Stromal Tumor (GIST) etc.

Augmentation therapy with C1-INH concentrates for patients with HAE is currently the only approved therapeutic application of C1-INH. This manuscript provides an overview of the structure and functions of human C1-INH [4-6], its role in HAE for recently approved C1-INH therapeutic products, and considers possible use of C1-INH for other applications. Human C1-esterase inhibitor (C1-INH) is a unique anti-inflammatory multifunctional plasma protein best known for its key role in regulation of the classical complement pathway, contact activation system and intrinsic pathway of coagulation. It belongs to the serine proteinase inhibitor (serpin) superfamily by doing sequence homology and protease inhibition mechanism. It exhibits a broad spectrum of non-inhibitory biological activities to its inhibitory capacities for several proteases. It plays a major role in the regulation of vascular permeability, best demonstrated in Hereditary Angioedema (HAE) [7,8] which is due to the deficiency of functional C1-INH in plasma. C1-INH was first identified in 1963. Considerable progress has been made in the investigation of C1-INH structure and biological activities, its therapeutic potential, and research and development of C1-INH-based therapies for the treatment of HAE.

Laboratory data intervenes in 70% of clinical decisions. Data is delivered by analyzers; knowledge is provided by the interpretation of this information through the knowledge and experience of the laboratory professionals [10-13]. As stated more than one century ago, "a medical student often leaves the walls of his alma mater with a false conception of the use of the laboratory in diagnosis" or "there is a danger that laboratory findings may be allowed to take the place of the keen thinking and the educated senses which our professional ancestors used to such good purpose".

Cardiopulmonary Bypass (CPB) for cardiac surgery, contact of blood with the surgical wound and the artificial surfaces of the extra-corporeal circuit leads to haemostatic disturbances and triggers an angry defense reaction. The resulting coagulopathy is caused by several factors: platelet dysfunction, low preoperative fibrinogen levels [14,15], hyperfibrinolysis, and continually produced thrombin. In addition, haemodilution plays an important role. Patients undergoing CPB procedures are usually infused with crystalloids or colloids, used as pump prime and intra-venous fluids. These infusions lead to a state of dilution coagulopathy while there is a significant fall in clotting factors. Secondly, excessive dilution could lead to an overestimation of the heparin effect, and a resulting overestimation of the required protamine neutralizing dose.

Hemosiderosis is a condition which is characterized with severe iron overload resulting with accumulation of hemosiderin in liver, pancreas, skin and joints. Increase in total total body iron and hemosiderin deposition at liver, pancreas, skin and articulations is described as hemosiderosis. Iron is accumulated in hepatocytes and Kupffer cells [16,17] in alcoholic liver disease.

Eosinophilic Esophagitis (EoE) is an increasingly recognized disorder. Diagnosis of EoE is based on histologic demonstration of eosinophilic inflammation [18], with ≥ 15 eosinophils per high power field (hpf) being the cutoff most commonly used, in the absence of pathologic reflux as evidenced by a normal pH monitoring study or persistent inflammation on high-dose proton pump inhibitor (PPI) treatment. Symptoms include feeding issues, vomiting, chest or abdominal pain, dysphagia and food impaction.

Eosinophils contain multiple toxic granules, whose content include basic proteins, cytokines, chemokines, lipid mediators, and oxygen radicals. Free-lying granules serve as a surrogate marker for released eosinophil products that promote tissue damage, inflammation, remodeling, and fibrosis. Eotaxin-3 is a chemokine stimulated by T-helper cytokines to recruit and activate eosinophils. PPI's have been shown to block eotaxin-3 release, suggesting a role independent of acid production. We previously reported improvement of symptoms in children with EoE on long-term PPI monotherapy with persistent eosinophilic inflammation. We hypothesized that symptomatic improvement in our patients was due to a PPI effect in eotaxin 3-induced degranulation. Therefore, we sought to determine whether the improvement with PPI monotherapy was associated with decreased eosinophil degranulation.

Cytoreductive surgery (CRS) coupled with intra-peritoneal chemotherapy has gained increasing recognition as a potential treatment for carefully selected patients with CRC peritoneal metastases. A significant advantage using this strategy was demonstrated by a Dutch randomised controlled trial by Verwaal and colleagues which is published in 2003, who found a median survival of 22.3 months in patients receiving CRS [19-21] and heated intra-peritoneal chemotherapy with or without systemic chemotherapy, compared to 12.6 months in patients treated with systemic chemotherapy with or without palliative surgery [21-25]. Perhaps even more important than median survival [26-28] is the chance of long-term survival, which can occur in approximately 50% of patients with low volume peritoneal disease [28-30].

CONCLUSION

Gastric cancer is a disease in which malignant cancer cells form in the lining of the stomach. The risk of developing gastric cancer is affected by age, diet, and stomach disease. Symptoms of gastric cancer are indigestion and stomach pain. Tests done while examining the stomach and esophagus are used to detect and diagnose gastric cancer. Certain factors affect prognosis and treatment options.

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