Changing Presentation and Management of Neutropenic Enterocolitis

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Objective: To characterize the current clinical presentation and management of neutropenic enterocolitis.

Design: Retrospective review of records of oncology unit patients requiring general surgical consultation for abdominal complaints in a 1-year period.

Setting: Oncology unit of a tertiary care, university teaching hospital.

Patients and Interventions: Fourteen patients diagnosed as having neutropenic enterocolitis were managed conservatively with operation reserved for failure of conservative therapy.

Main Outcome Measures: Clinical data from patients at the time of presentation and during treatment for neutropenic enterocolitis.

Results: All 14 patients diagnosed as having neutropenic enterocolitis were receiving chemotherapy for solid tumors or leukemias. Seven patients were undergoing stem cell or autologous bone marrow transplantation. Presenting symptoms and physical examination findings were nonspecific. All patients except one had neutropenia at the time of diagnosis. Computed tomographic scans of the abdomen were the most useful confirmatory study for the diagnosis of neutropenic enterocolitis. All patients except one had resolution of neutropenic enterocolitis with conservative therapy. One patient whose course of conservative management failed had protracted neutropenia and required operation for resection of bowel with full-thickness necrosis.

Conclusions: Neutropenic enterocolitis has evolved from a complication of patients with leukemia to a disease of patients receiving high-dose chemotherapy for many malignancies, solid as well as hematologic. Diagnosis of neutropenic enterocolitis continues to be a challenge, as patients typically present with nonspecific gastrointestinal tract symptoms. Neutropenia and computed tomographic scan findings are useful adjuncts in diagnosing neutropenic enterocolitis. Timely conservative treatment frequently allows resolution of neutropenic enterocolitis without operation.

Arch Surg. 1998;133:979-982

Neutropenic enterocolitis is a necrotizing inflammation of the colon found in immunocompromised patients. Neutropenic enterocolitis was first and most commonly described in the 1970s as a complication of the treatment of childhood leukemias. However, with the proliferation of intensive chemotherapeutic regimens for adult malignancies, it has become increasingly common in adult populations receiving treatment for solid as well as hematologic malignancies. The purpose of this study is to review our recent experience with neutropenic enterocolitis to characterize the current clinical presentation and management of this disease.

The average age of the patients in the study group was 47.3 years (age range, 24-77 years). Ten of the 14 patients were female. Leukemia was the most common primary diagnosis (5 patients), followed by breast cancer (4 cases), lymphoma (2 cases), gastrointestinal tract malignancies (2 cases), and pontine glioma (1 case).

All patients were receiving or had recently completed a cycle of chemotherapy. Chemotherapeutic regimens varied widely among patients. Alkylating agents, antitumor antibiotics, antimetabolites, steroids, and plant alkaloids were all used. Three patients with leukemia and all 4 patients with breast cancer received high-dose chemotherapy in preparation for autologous stem cell or bone marrow transplantation.

The most common presenting symptom was crampy abdominal pain that occasionally localized to the right lower quadrant. All 13 mentally alert patients complained of abdominal pain. The remaining patient had a diminished mental
Two patients had blood cultures positive for *Clostridium difficile* toxin assay had negative results. Twelve of the 13 patients managed conservatively had resolution of neutropenic enterocolitis without operation. They had resolution of symptoms and were returned to a regular diet in a mean of 6.5 days (range, 1–14 days).

In 1 patient, this initial conservative therapy failed and surgery was required on the seventh day after the onset of symptoms. This patient’s course after the institution of conservative management was characterized by a prolonged period of severe neutropenia and progressive clinical deterioration mandating exploratory laparotomy. Findings at the time of operation included straw-colored ascites, a congested liver, and ischemia of the entire small bowel and right colon most severely involving the distal ileum with focal areas of transmural necrosis. Good pulses were noted throughout the bowel mesentery. The patient underwent resection of the right colon, ileum, and distal jejunal with end jejunostomy and mucous fistula. The patient recovered from the operation...
Neutropenic enterocolitis has become a common complication of the chemotherapeutic treatment of solid and hematologic malignancies of adults. Appropriate clinical and radiologic findings are necessary for an early diagnosis. Successful outcome is likely multifactorial. Success with this approach is likely multifactorial. Increased awareness of its occurrence in high-risk groups and invasive infection by opportunistic organisms are common in patients receiving chemotherapy and may lead to inappropriate management. Adverse effects to the liver. Of note, this patient's clinical course prior to operation was remarkable for severe, protracted neutropenia, possibly putting her at increased risk for transmural necrosis and clinical deterioration.

The remaining patients in the study had resolution of neutropenic enterocolitis with conservative management. Success with this approach is likely multifactorial. Increased experience with high-dose chemotherapeutic regimens on the part of medical oncologists may be limiting the period of severe neutropenia, thus allowing the milder forms of the disease to resolve without operation. It is also possible that this period of neutropenia now occurs in a more controlled environment, what with routine use of neutropenic precautions and supportive measures such as granulocyte-macrophage colony-stimulating factor. There is also a heightened awareness for the disease among both oncology and surgical services that may allow for earlier diagnosis and institution of conservative measures before irreversible changes to the bowel wall have occurred.

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References


Archives of Internal Medicine

Homocysteine and Ischemic Heart Disease: Results of a Prospective Study With Implications Regarding Prevention

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Background: Results from prospective studies of serum homocysteine levels and ischemic heart disease (IHD) are inconclusive. We carried out a further prospective study to help clarify the position.

Methods: In the British United Provident Association (BUPA) prospective study of 21,520 men aged 35 to 64 years, we measured homocysteine levels in stored serum samples and analyzed data from 229 men without a history of IHD at study entry who subsequently died of IHD and 1126 age-matched control subjects (nested case-control design).

Results: Serum homocysteine levels were significantly higher in men who died of IHD than in men who did not (mean, 13.1 vs 11.8 µmol/L; P < .001). The risk of IHD among men in the highest quartile of serum homocysteine levels was 3.7 times (95% confidence interval [CI], 1.8-7.7) that of men in the lowest quartile. The risk also increased by 41% (95% CI, 20%-65%) for each 5-µmol/L increase in the serum homocysteine level. After adjustment for apolipoprotein B levels and blood pressure, this estimate was 33% (95% CI, 22%-59%). In a meta-analysis of the retrospective studies of homocysteine level and myocardial infarction, the age-adjusted association was stronger: an 84% (95% CI, 52%-123%) increase in risk for a 5-µmol/L increase in the homocysteine level, possibly because the participants were younger; the relationship between serum homocysteine level and IHD seems to be stronger in younger persons than in older persons.

Conclusions: Our positive results help resolve the uncertainty that resulted from previous prospective studies. The epidemiological, genetic, and animal evidence together indicate that the association between serum homocysteine level and IHD is likely to be causal. A general increase in consumption of the vitamin folic acid (which reduces serum homocysteine levels) would, therefore, be expected to reduce mortality from IHD. (1998;158:862-867)

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