A System and Method to Manage the Diagnosis and Therapy of Recurrent Urinary Tract Infections

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Technology description

Urinary tract infections (UTIs) account for more than 7 million outpatient visits to physicians' offices and well over one million hospital admissions in the United States annually. In ambulatory patients alone, the national health care cost of UTIs is estimated to approach $1 billion. In an era in which controlling health care costs is a national priority, improvements in the management of UTI can and should be made. Despite the prevalence of UTIs, particularly among women, the availability of data linking the patient, disease, treatment, and outcome is surprisingly limited.

Since most UTIs can be managed effectively without the inconvenience, expense, and delay of exhaustive testing, most patients showing evidence of UTI are given prescription antibiotics at the discretion of the physician. If the symptoms do not pass or if they recur, the patient returns repeatedly to the physician. Ultimately a more thorough diagnosis may be performed, but only after significant demands on the physician's time and considerable discomfort to the patient. This method of management is clearly ineffective and potentially dangerous for the non-responders. Furthermore, since data are not uniformly collected, the current system is a barrier to understanding the demographic factors associated with UTIs and the growing problem of antibiotic resistance.

A prominent urologist at Northwestern University has designed an integrated, multi-component system for UTI management that addresses all of these limitations. Central to the system is a prescription kit that includes an antibiotic as well as the materials and instructions necessary for the patient to collect her own urine sample and to perform initial tests at home. The diagnostic tests are performed both prior to and following the prescribed therapy, and the results are analyzed by a qualified clinical laboratory. Through an electronic network of participating physicians, pharmacies, and clinical laboratories, all data pertaining to the patient and to the diagnosis, treatment, and outcome of the disease are collected into a centralized database. With the system in place, the best course of treatment for a given patient can be predicted based on data documenting the effectiveness of different therapies in similar patients. Even a patient with a recurring UTI can be successfully treated without follow-up office visits unless test results show reason for concern. Since the database is continually updated, the physician can also be aware of recent trends indicating outbreaks of drug resistance.

Application area

The system is currently tailored to meet the unusual challenges presented by UTI; however, it could easily be expanded to other diseases that can be managed on an outpatient basis. It is expected to be particularly attractive to managed care organizations concerned with lowering health care costs and monitoring the performance of participating physicians.

Advantages

This innovative new system is expected to reduce health care costs by minimizing the number of office visits and to improve the overall quality of patient care by providing physicians with a repository of important information that is currently not available to them.

The current method of treating patients without cultures or documentation has significant potential for complications and needless treatment of patients who do not have infections. The alternative system presented here circumvents these problems by providing more thorough diagnostic analysis while simultaneously lowering costs. It also provides a method of collecting important information about the disease that can be used to assist physicians, managed care organizations, and pharmaceutical companies to improve the quality of patient care.

Institution

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