levofloxacin prophylaxis in cancer patients with chemotherapy-induced neutropenia. Despite the fact that these patients frequently develop life-threatening bacterial infections, the prophylactic use of fluoroquinolones to prevent this remains controversial.

Bucaneve and colleagues in Italy have carried out the first clinical trial large enough to provide conclusive evidence of the efficacy of prophylactic use of the fluoroquinolone levofloxacin. Altogether, 760 patients with neutropenia and acute leukemia, solid tumors, or lymphoma were randomly assigned to receive oral levofloxacin ($n = 384$) or placebo ($n = 376$) until neutropenia had resolved.

An intention-to-treat analysis revealed a significant reduction in the number of patients with fever requiring empirical antibiotic therapy in the levofloxacin group compared with the placebo group ($P = 0.001$). The levofloxacin group also had significantly fewer microbiologically documented infections than the placebo group, and the total cost of antibiotics was significantly lower ($P < 0.001$). Compliance, tolerability and mortality rates were similar in the two groups.

The authors conclude that prophylactic use of levofloxacin is effective, well tolerated, and cost-effective in high-risk patients with neutropenia; however, they also report two criticisms of their study: firstly, that routine prophylactic use could increase resistance to fluoroquinolones, and thus reduce their clinical efficacy; and secondly, that no survival advantage from prophylaxis has been demonstrated. Based on their findings, the authors feel that a reassessment of the role of fluoroquinolones for this indication is warranted.

Tamsin Osborne

Original article Bucaneve G *et al.* (2005) Levofloxacin to prevent bacterial infection in patients with cancer and neutropenia. *N Engl J Med* **353:** 977–987

Specific and sensitive detection of prostate cancer using urine sediment DNA

Treatment of prostate cancer can be curative but depends on early detection. Although prostate-specific antigen (PSA) is widely regarded as one of the best serum tumor markers, PSA level alone is neither sensitive nor specific enough for a definitive diagnosis, and transrectal biopsies are needed to confirm prostate cancer. A recent study has demonstrated that the detection of aberrant promoter methylation using quantitative methylation-specific polymerase chain reaction (QMSP) in urine sediment DNA offers potential as a specific, sensitive and noninvasive test for prostate cancer.

Hoque and colleagues used QMSP to detect aberrant methylation of 9 gene promoters in urine sediment DNA from 52 prostate cancer patients and 91 normal, age-matched controls. Promoter hypermethylation of at least one gene was seen in all prostate cancer samples. No methylation of *p16*, *ARF*, *MGMT* or *GSTP1* was seen in matched controls, although low levels were detected for the other promoters tested. Based on these data, the authors conclude that testing for aberrant methylation of *p16*, *ARF*, *MGMT* and *GSTP1* using QMSP would theoretically allow for the detection of 87% of all prostate cancers with 100% specificity.

Detection of aberrant methylation in urine DNA offers a simple, readily automated, noninvasive means of detecting and monitoring prostate cancer. Using carefully selected methylation markers, the technique might also be useful for the detection of other urologic tumors that contribute cellular DNA to urine sediment.

Carol Lovegrove

Original article Hoque MO *et al.* (2005) Quantitative methylation-specific polymerase chain reaction gene patterns in urine sediment distinguish prostate cancer patients from control subjects. *J Clin Oncol* **23:** 6560–6575