Drugs used to tackle hospital-acquired infections can increase post-op complications

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The introduction of new antibiotic regimes to tackle hospital-acquired infections, such as *C. difficile*, must take into account the possibility of increased infections following specific surgical procedures. That is the key finding of a study published in the November issue of the urology journal *BJUI*.

UK researchers from Addenbrooke's Hospital, Cambridge discovered that patients undergoing a standard surgical procedure to diagnose prostate cancer developed more than five times as many infective complications when a new standard antibiotic regime was introduced.

These included a number of cases of sepsis and one case of septic shock, which they describe as a highly significant finding.

"The change, based on national guidance, reflected concerns that *C. difficile* rates were being driven by the widespread use of broad-spectrum antibiotics such as ciprofloxacin" explains departmental lead and senior author Professor David Neal. "The new regime was introduced on the proviso that both the hospital-acquired infection rates and post-operative infection rates would be closely monitored.

"Given that there were no cases of *C. difficile* recorded in our study, but post-operative infection rates increased significantly, the decision was taken to revert back to the original regime."

Records for 709 consecutive patients who received transrectal ultrasound-

guided prostate biopsy surgery (TRUSP Bx) over a period of 20 months were studied. These showed that:

- Only 2.4 per cent of the 454 patients treated with the original regime of prophylaxis with ciprofloxacin developed an infective complication within four weeks of surgery and four (0.9 per cent) were admitted for complications.
- 12.9 per cent of the patients treated with the new regime of prophylaxis with co-amoxiclav and gentamicin developed an infective complication within four weeks of surgery. Twelve patients (4.7 per cent) were admitted for complications.
- Seven of the 12 patients readmitted after being treated with the new regime were admitted with sepsis - in which the bloodstream is overwhelmed by bacteria - and a further patient had septic shock, which required inotropic support for 24 hours. None of the patients on the original regime had these very serious complications.
- None of the patients developed *C. difficile* within one month of receiving antibiotics.
- Reintroducing the original regime led to a fall in infective complications.

"Even though TRUSP Bx is a common urological procedure there are currently no national guidelines regarding antibiotic prophylaxis and local protocols vary widely across the UK" says Professor Neal. "However, the importance of using prophylaxis for a biopsy, to reduce the occurrence of infective complications following surgery, has been well documented.

"This is the first study to compare the use of co-amoxiclav and gentamicin with the use of ciprofloxacin for TRUSP Bx. Patients given the original ciprofloxacin regime experienced significantly fewer

infective complications than those on the new regime and this audit study supports the use of locally determined prophylactic regimes for this procedure."

The authors stress that antibiotic prophylaxis needs to reflect the local situation, both in terms of tissue penetration, the organisms encountered and their susceptibilities and the local *C. difficile* rates. They add that any changes also need to be subject to frequent review.

"Any alteration to existing departmental antibiotic policies should be linked to strong clinical evidence, because such changes may potentially result in significant ill health and potential harm, as well as the financial burden of treating new complications" concludes Professor Neal.

More information: Infective complications after transrectal ultrasound-guided prostate biopsy following a new protocol for antibiotic prophylaxis Madden et al. *BJUI*. (November 2011). 108, pp1597-1602 doi:10.1111/j.1464-410X.2011.10160.x

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