In vitro inactivation of Chlamydia trachomatis and of a panel of DNA (HSV-2, CMV, adenovirus, BK virus) and RNA (RSV, enterovirus) viruses by the spermicide benzalkonium chloride


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Sir,

We read with interest the article by Bélec et al.1 on the inactivation of Chlamydia trachomatis and various DNA and RNA viruses by benzalkonium chloride (BZK). The authors undertook the tests by adding each of the infectious agents to dilutions of BZK, incubating the mixtures at 37°C for various time periods, centrifuging the mixtures at high speed, washing the deposits and then introducing the resuspended deposits into appropriate sensitive cell cultures. Under these conditions it was shown unequivocally that after incubation for 5 min, BZK was very effective in inactivating enveloped viruses, including HSV-2 and CMV, but less so for non-enveloped viruses. Furthermore, it killed C. trachomatis after incubation for 1 min at low concentration. We appreciate that used as a vaginal microbicide, BZK is likely to be active against extracellular C. trachomatis and other infectious agents introduced in semen, although the effect that the semen per se might have on the inactivation process was not assessed. We should emphasize, however, that women in both industrialized and developing countries who may be at increased risk of infection from their partners are often already infected with C. trachomatis and other intracellular agents such as Neisseria gonorrhoeae and viruses. While BZK may be active against extracellular infectious agents in semen, its ability to kill intracellular organisms is far less likely. This would be reminiscent of povidone-iodine, which kills C. trachomatis organisms rapidly in vitro,2 but is of no value as a means of treating established chlamydial infections, because it fails to penetrate cells. This raises the question of how the anti-chlamydial activity of a compound should be measured. It was pointed out 22 years ago that the most appropriate way of doing this is to treat already infected cell cultures rather than mixing the antimicrobial agent in question with C. trachomatis organisms and then introducing the mixture into cell cultures.3 The need to examine the activity of BZK in this way is apparent. Lack of activity in a test of this kind will emphasize the need to administer antibiotics active against bacterial sexually transmitted infections on the basis of the results of appropriate diagnostic tests or as presumptive therapy, before the use of a vaginal microbicide that kills HIV and other agents but is unlikely to have any intracellular activity.

References

