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**Title:** Surfactant-enforced treatment of pseudomonas-induced pneumonia

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**Body:** Background. The ability of exogenous surfactant to decrease surface tension offers an opportunity to use it as a vehicle to enhance delivery of antibiotics via respiratory tract into foci of pulmonary infection and, thus, to improve therapy of bacterial lung diseases. Aims. To study mutual influence of exogenous surfactant and amikacin and to assess effects of their joint intratracheal instillation in rats with acute pneumonia caused by *Pseudomonas aeruginosa*. Methods. Antibacterial and surface-active properties of amikacin (Amicil, Kievmedpreparat, Ukraine), porcine pulmonary surfactant (Suzacrin, Docpharm, Ukraine) and their mixture were studied in vitro by means of standard microbiologic procedure and modified Pattle method (estimation of bubble diameter). Similar methods were used to study bacterial contamination of lungs and blood, and to assess surface activity of bronchoalveolar wash (BAW) in 119 Wistar rats, including infected (intratracheal introduction of *P. aeruginosa* ATCC 27853) and noninfected animals. Histopathologic findings and differential leucocyte counts in blood and BAW were recorded. Results. When mixed in vitro, surface-active and antibacterial properties of the surfactant and amikacin remained unimpaired. In rats antipseudomonal and antiinflammatory effects of the surfactant-amikacin mixture were more pronounced ( $p < 0.05$ ) than effects of pure amikacin as evidenced by the recorded rates of bacterial growth and granulocytic response (blood and BAW samples). In addition, the combined therapy mitigated the reduction of BAW surface activity. Conclusion. Advantages of the combined surfactant-amikacin treatment of *Pseudomonas*-induced pneumonia may suggest further clinical trials.