

**O22 Effects of early versus late treatments by marbofloxacin in a mouse-model of *Pasteurella multocida* pulmonary infection**

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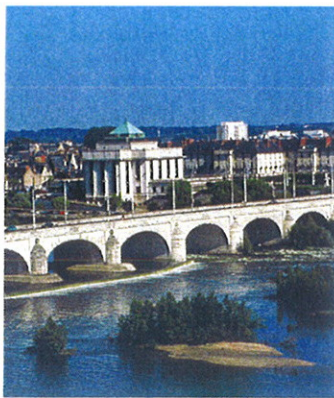
In veterinary medicine, the administration of antimicrobial drugs to animals before the onset of the symptoms of bacterial infection may be regarded as an irrational and useless antibiotic consumption. However, early collective antimicrobial treatments in which all the animals of a group that are actually exposed to a pathogen are treated could have some advantages in terms of clinical outcomes and prevention of antimicrobial resistances, over the later individual treatments in which only the animals showing clinical symptoms of the disease are treated. Indeed, in the case of early antimicrobial treatments, the bacterial burden at the infectious site is often very low, which could result in the rapid eradication of the emerging bacterial population without the associated risk of resistance selection.

In a mouse lung infection with *Pasteurella multocida*, we investigated the impact of early (10 hours after the infection) versus late (32 hours after the infection) administrations of 1 or 40 mg/kg of marbofloxacin - a fluoroquinolone used in animals -, on the survival of mice, the eradication of the targeted bacterial population and the selection of resistant mutants.

For a given marbofloxacin dose (1 or 40 mg/kg), the late treatments were associated to a four-fold higher plasma exposure to marbofloxacin and, at the same time, to worse clinical and bacterial outcomes and higher selection of resistance compared with the early treatments. Interestingly, the early administration of 1 mg/kg marbofloxacin gave a higher survival rate and similar percentages of bacterial eradication and resistance selection as the late administration of 40 mg/kg marbofloxacin.

These results showed that early treatments could lead, with lower antimicrobial doses, to better clinical and microbiological outcomes on the targeted bacterial population than late treatments. Therefore, even though the impact on the commensal digestive flora remains to be investigated, the strategy of early collective antimicrobial treatments could induce an advantageous reduction of antibiotic consumption at the individual level.

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