



Pharmacokinetics of tylvalosin in healthy and experimentally *mycoplasma gallisepticum* infected broiler chickens

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Abstract : A study of tylvalosin pharmacokinetics was conducted in healthy and *Mycoplasma gallisepticum*-infected broiler chickens. Tylvalosin was administered intravenously and orally at a dose rate of (25 mg/kg b.wt.) to determine its concentrations in blood as well as its kinetic disposition. The serum concentration - time curve indicated a two compartment open model. Following intravenous injection, the mean elimination half-lives ($t_{1/2\beta}$) of (6.666±0.285 and 3.048±0.232 h) before and after infection, respectively. The apparent volume of distribution ($V_{d(\text{area})}$) of tylvalosin was (3.802±0.148 and 0.657±0.367 L/Kg) with body clearance CL_{β} (0.953±0.040 and 1.976±0.743. L/kg/h) with mean of MRT was (9.314±0.407 and 1.739±0.779 h) in healthy and *M. gallisepticum* -infected chickens, respectively. Following oral administration, Tylvalosin was absorbed with (t_{2ka}) of (0.963±0.045 and 0.958±0.207 h) with peak serum concentration of (1.226±0.041 and 0.0760±0.024 µg/ml) at (t_{max}) of (1.723±0.04 and 1.310±0.055 h) and eliminated with ($t_{1/2\beta}$) of (3.504±0.49 and 3.862±0.103 h) in healthy and infected chickens. The systemic bioavailability of Tylvalosin (F%) following oral administration was (48.39±0.001 and 72.96±0.003 %) in healthy and infected birds respectively. It is to conclude that serum and tissues Tylvalosin concentration following twice-daily dose of (25 mg/Kg b. wt./day) were suitable to maintain its therapeutic regimen for treatment of mycoplasma infection in broiler chickens, in addition mycoplasma infection significantly decrease and/or consumed serum concentration, increased elimination rate so it is recommended that dose rate is adjusted in case of mycoplasma infection.

Keywords: Tylvalosin; Disposition kinetics; Healthy; Broiler chickens; *Mycoplasma gallisepticum*.

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