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Pharmacokinetic Study of Glimepiride Alone and in Combination with Atorvastatin in Healthy Male Volunteers

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***SUMMARY*. In present study the effect of atorvastatin on pharmacokinetics of glimepiride was investigated in ten adult healthy male subjects after a single oral dose of glimepiride alone and in combination with atorvastatin with a 10 days washout period. After blood sampling, plasma concentration of glimepiride was determined by HPLC method and pharmacokinetic parameters were calculated. On concomitant administration, atorvastain increased the C_{max} of glimepiride from 0.30 to 0.83 µg/mL, AUC from 1.59 to 9.37 µg.h/mL, T_{max} from 2.51 to 4.18 h and $t_{1/2}$ from 3.04 to 7.74 h. Whereas atorvastatin decreased the V_d of glimepiride from 0.08 to 0.03 L/kg and Cl_B from 0.020 to 0.003 L/h.kg. Therefore, it can be concluded from present study that atorvastatin increases the plasma concentration and decreases the clearance of glimepiride by inhibiting its metabolism, which may lead towards unpredictable toxicity.**

RESUMEN. En este estudio se investigó el efecto de atorvastatina sobre la farmacocinética de glimepirida en diez adultos varones sanos después de una dosis oral única de glimepirida sola y en combinación con atorvastatina, con un período de lavado de 10 días. Después de tomar muestras de sangre, la concentración plasmática de glimepirida se determinó por HPLC y se calcularon los parámetros farmacocinéticos. En la administración concomitante, atorvastain aumentó la C_{max} de glimepirida de 0,30 a 0,83 µg/mL, AUC de 1,59 a 9,37 µg.h/mL, T_{max} de 2,51 a 4,18 h y $t_{1/2}$ de 3,04 a 7,74 h, mientras que la atorvastatina disminuyó el V_d de glimepirida de 0,08 a 0,03 L/kg y Cl_B de 0,020 a 0,003 L/h.kg. Por lo tanto, se puede concluir a partir de este estudio que la atorvastatina aumenta la concentración en plasma y disminuye el clearance de glimepirida por inhibir su metabolismo, lo que puede conducir hacia una toxicidad impredecible.

KEY WORDS: interaction, pharmacokinetic, statin, sulphonylurea.

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