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Effect of verapamil on renogram

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Calcium channel blockers are among the most widely used prescribed drugs for the treatment of cardiovascular diseases. The present study investigates the effect of verapamil, which is the most commonly used as a calcium channel blocker, on radionuclide imaging technique, renogram. Ten New Zealand White rabbits were used. Isometric tensions were recorded for isolated renal artery ring segments. Renographic studies were performed, using Technetium-99m mercaptoacetyltriglycine (99mTc-MAG3). Studies were acquired using Gamma camera. Time to peak activity (T max), time from peak to 50% activity (T ½), were calculated from the renograms for control and after treatment with 2 mg verapamil. In vitro, verapamil shifted the curve of phenylephrine concentration-dependent contraction on renal artery to the right. In vivo,

Tmax for control and treated rabbits were 2.8±0.1 and 2.2±0.2 min. The T½ for control and treated rabbits were 4.7±0.05 and 4.2±0.08 min, respectively; p<0.05. There is 30±4 % decrease in the two values. This indicated that there was a rapid renal uptake of the tracer and clearance of the radioactivity after verapamil. This study proved that verapamil dilated the renal artery and accelerated both the Tmax and T½ in the renogram. Verapamil increases renal blood perfusion and glomerular filtration rate, protects kidney function and improves its work even at normal condition. These effects would change the renogram and gave inaccurate results for the kidney condition. Based on these findings it is suggested not to use verapamil for a reasonable period before performing renography. This is to avoid the misleading results.

Biography

Seham Mustafa has completed his PhD from Bath University, Faculty of Pharmacy & Pharmacolog, UK. She is the Chairperson of Biomedical Sciences Dept., College of Nursing, PAAET, Kuwait. She has published more than 50 papers in reputed journals.

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