Letters to the Editor

Internal thoracic artery response to papaverine: takes time

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Keywords: Internal thoracic artery; Papaverine; Vasodilation

Takeuchi and associates found that exposure of the internal thoracic artery to intralumenal papaverine for 1 min did not increase free flow [1]. It is well known that maximal vasodilation to papaverine requires at least 10 min of exposure [2] so that their comparison is unfair and should be appropriately qualified.

It is also germane that papaverine inhibits cyclic nucleotide phosphodiesterase although it is not established that this is the mechanism for vasodilation [3].

It has been my practice for 30 years to treat all arterial conduits with intraluminal papaverine in heparanized blood (2 mg/ml) to achieve a maximally dilated conduit at the time of graft placement. Diluting the papaverine in blood results in a pH of 7.3 because of the buffering capacity of blood [4].

References

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Reply to Barner

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Keywords: Internal thoracic artery; Phosphodiesterase III inhibitor; Papaverine hydrochloride

We appreciate the interest of Dr Barner in our article on the reactivity of the human internal thoracic artery to vasodilators in coronary artery bypass grafting (CABG) [1].

We know that maximal vasodilation to papaverine hydrochloride requires at least 10 min of exposure [2]. And we know that maximal mean response to PDEIII inhibitor requires at 15 min [3].

In fact, before this study we too used papaverine hydrochloride in performing CABG. We were also aware of the differing reaction times of the other vasodilators which we used and considered these reactions times under fixed conditions.

Within clinical study conditions the importance of papaverine hydrochloride has been noted, but in conjunction with PDEIII inhibitor reaction time PDEIII inhibitor is the better of the two in actual practice. Liu and associates showed that comparison of PDEIII inhibitor with other vasodilators, including papaverine hydrochloride, nitroprusside, and glyceryl trinitrate, showed PDEIII inhibitor to be more potent of vasodilation than papaverine hydrochloride but less potent than nitroprusside and glyceryl trinitrate [4].

Now, when performing CABG it is our preference to use the PDEIII inhibitor as opposed to papaverine hydrochloride. PDEIII inhibitor reaction time under operating conditions exhibits more responsive and effective results with regard to maximal vasodilation and increased free flow of blood within the optimal for one minute.

References