

PROTAMINE-INDUCED HYPOTENSION EPISODE IN UREMIC PATIENTS: INCIDENCE AND ATTRIBUTE

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BACKGROUND/AIMS: Protamine is a polycationic peptide that is mainly used to reverse the anticoagulant effects of heparin. It is occasionally associated with a severe systemic reaction and significant morbidity and mortality. As cardiac catheterization and coronary artery bypass graft (CABG) surgeries have been performed with increasing frequencies, protamine-associated adverse reactions could be more deleterious to particular patient groups. The objective of this study was to investigate whether uremic patients are more susceptible to protamine adverse reactions during CABG surgery.

METHODS: A hypotensive episode (fall in mean systemic blood pressure over 20 mmHg) occurring 10 minutes after protamine administration is a typical protamine adverse reaction and was chosen for retrospective analysis of its incidence. The prevalence of antiprotamine IgG antibody in plasma is determined by ELISA because it is a factor known to be highly associated with the attributes of protamine reactions. Cumulatively, more than 400 cases in our hospital divided into two main groups: non-hemodialysis (Non-HD) and hemodialysis (HD), and three subgroups: non-diabetes (non-DM), diabetes without receiving insulin dosage [DM-I(-)], and diabetes receiving insulin [DM-I(+)], were included to determine hypotension incidence and antibody prevalence.

RESULTS: The results of the retrospective analysis revealed that average uremic patients (HD) (~46%) had a higher incidence of protamine-associated hypotensive episodes than non-uremic patients (non-HD) (~37%) in CABG surgery. If the uremic patients were on insulin treatment [DM-I(+)], the incidence could be even higher (57%). ELISA results of plasma antiprotamine IgG antibody further identified the attribute of this reaction, which had a significant odds ratio of 14.21.

DISCUSSION/CONCLUSIONS: We concluded that individuals with concurrent DM and HD on an insulin regimen are susceptible to develop protamine-associated hypotension during CABG surgery.

Key words: uremic; cardiopulmonary bypass; protamine