Aprotinin in fibrin tissue adhesives induces specific antibody response and increases antibody response of high-dose intravenous application.

Authors: Scheule AM, Beierlein W, Wendel HP, Jurmann MJ, Eckstein FS, Ziemer G

Publication Date: 1999

Abstract:

BACKGROUND: In cardiac operations, aprotinin therapy is used either locally as a component of commercially available fibrin tissue adhesives, intravenously, or combined. Our aim was to examine the formation of aprotinin-specific antibodies with regard to the application mode.

METHODS: Sera of 150 patients who had undergone cardiac operations and were receiving aprotinin therapy for the first time were sampled before the operation and at medians of 3.5 and 13.3 months after the operation. Aprotinin-specific IgG including all subgroups and aprotinin-specific IgE were analyzed. Aprotinin was given locally (as contained in fibrin sealant; n = 45; median dose, 6000 KIU), intravenously (n = 46; 2.000 x 10(6) KIU), and combined (n = 59; 2.012 x 10(6) KIU).

RESULTS: At 3.5 months, the prevalence of aprotinin-specific IgG antibodies was 33% (15/45 patients) after local, 28% (13/46 patients) after intravenous, and 69% (41/59 patients) after combined exposure (P =.0001). At 13.3 months, the prevalence of aprotinin-specific IgG antibodies was 10% (4/41 patients) after local, 31% (13/42 patients) after intravenous, and 49% (28/57 patients) after combined exposure. Total aprotinin dose was similar in patients who were antibody positive and negative. Before the operation, no aprotinin-specific antibodies were detected. Aprotinin-specific IgE were not found after the operation.

CONCLUSION: Local aprotinin contact induces a specific immune response and reinforces that of intravenous exposure. The antibody spectrum is identical to the immune response induced by intravenous exposure. Any exposure should be documented. For use in cardiac operations as a hemostyptic, the necessity itself and alternatives for aprotinin as a stabilizing agent merit consideration.