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Title: In vitro activation of human complement by nitrogen bubbles

Authors: Shastri, KA
Logue, GL
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Keywords: decompression
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Issue Date: 1991

Abstract: Complement activation may be responsible for some of the symptoms of decompression sickness. In the present study, complement activation was studied by exposing human sera with or without red blood cells to nitrogen bubbles. Nitrogen bubbles activated human complement as measured by generation of the fluid-phase, complement-split product C5a des Arg. In addition, we found that complement activation continued after exposure to bubbles was stopped. This continued complement activation may explain the failure of recompression treatment in some patients. Complement activation induced by nitrogen bubbles in human sera was enhanced when red cells were present. Red cells may be able to provide a stable membrane surface on which complement activation by bubbles can occur more efficiently. Complement activation by nitrogen bubbles in serum also led to the binding of activated C3 to red cells. Quantitation of bystander red-cell-bound C3d may allow the assessment of complement activation occurring by nitrogen bubbles in individuals undergoing decompression.

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