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Autor(en) des Beitrags: Vogt, Stephan; Venjakob, Arne J; Stöckl, Klaus; Tischer, Thomas; Jost, Philipp J; Imhoff, Andreas B; Thein, Eckart; Anetzberger, Hermann

Titel des Beitrags: Evidence of an autoregulatory mechanism of regional bone blood flow at hypotension.

Abstract: Blood flow in various organs is determined by an autoregulatory mechanism that guarantees constant organ perfusion over a wide range of arterial blood pressure changes. This physiological principle has been proven for the kidney, brain and intestinal tract, but so far not for bone. This study was carried out to determine whether there is an autoregulatory mechanism of bone or not. The fluorescent microsphere reference sample method was used to determine blood flow within the bone and kidneys. Eight anesthetized female New Zealand rabbits received left ventricular injections of fluorescent microspheres over a wide range of arterial pressure levels prior to removal of kidney, femur and tibia. Blood flow values were calculated by measurement of fluorescence intensity in kidney and bone and correlated to fluorescence intensity in the peripheral blood (reference sample). Despite a reduction of mean arterial pressure from 100 to 80 mmHg bone blood flow remained constant. Further reduction of mean arterial pressure results in a linear decrease in bone blood flow. The correlation between arterial pressure and organ perfusion in the bone is similar to blood flow within the kidney, indicating the presence of an autoregulated blood flow mechanism within the bone tissue.

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