Increasing Coronary Flow
By Means of Hemodilution

A possible adjunct in the treatment of acute myocardial infarction with hyperbaric oxygenation.

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Studies in our laboratory have shown that in acute normovolemic dextran 75 anemia in dogs cardiac output rises exponentially as the hemoglobin level falls. Although, in this acute situation, incomplete compensation for the decreased oxygen-carrying capacity of the blood results in some degree of hypoxia, coronary flow increases over and above the increase in cardiac output such that myocardial ischemia takes place only at very low levels of hemoglobin. This level seems to be around three to four grams hemoglobin.

Moreover, the great increase in cardiac output is accomplished without added energy expenditure of the heart until the hemoglobin falls to about four grams per-cent. This increase in cardiac efficiency is apparently due to both an increased myocardial contractility and decreased peripheral resistance.

It seems possible that this response could be used to advantage in the treatment of cardiogenic shock along with hyperbaric oxygenation since the problem is largely one of decreased cardiac output and decreased coronary flow due to a damaged, inefficient heart.

Technique Tips

Dietz van Dura uses a half of a disposable syringe container to back-up rubber sampling sites in artificial kidney circuits. This prevents the sampling needle from going through the tubing and possibly inflicting a wound in the one who is sampling (and who wants hepatitis?).