APOPTOSIS, DO WE HAVE TO BE FAMILIAR WITH?

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Apoptosis, or programmed cell death, is a normal component of the development and health of multicellular organisms. Cells die in response to a variety of stimuli and during apoptosis they do so in a controlled, regulated fashion. This makes apoptosis distinct from another form of cell death called necrosis in which uncontrolled cell death leads to lysis of cells, inflammatory responses and, potentially, to serious health problems. Apoptosis, by contrast, is a process in which cells play an active role in their own death (which is why apoptosis is often referred to as cell suicide). Myocardial ischemia is caused by an inadequate blood supply, and thereby an inadequate supply of oxygen and glucose to the heart. If blood flow is not rapidly restored, massive cardiomyocyte death may follow. Reperfusion of ischemic tissue is not without risk, however, as it is also associated with cardiomyocyte death. It remains controversial whether cell death during reperfusion is a completion of that which was initiated during ischemia or caused directly by reperfusion itself—for example, by oxidative stress. Regardless of the cause of cardiomyocyte death—ischemia, reperfusion, or both—studies conducted with several animal models of ischemic-reperfused heart and on tissue from humans after myocardial infarction (a clinical counterpart of ischemia/reperfusion injury) suggest that both apoptosis and necrosis are responsible for cell death.

References: