"Normalizing tumor vasculature to treat cancer: From mathematical model to mouse to man"

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Cancerous tumors require blood vessels to grow and spread to other organs. Dr. Jain demonstrated that the blood vessels of tumors are abnormal – not only in their structure, but also in their function. Using a mathematical model, he showed consequences of this abnormality – specifically, how this abnormality contributes directly to malignant properties of a cancer as well as prevents treatments from reaching and attacking tumor cells. Dr. Jain proposed a novel concept that “normalizing” tumor vessels would allow cancer therapies to penetrate the mass and to function more effectively. He then went on to show first in mice and then in cancer patients that drugs originally deigned to destroy tumor vessels could, paradoxically, also repair them, creating a window of opportunity to attack the cancer most effectively. This concept is also opening doors to treating other vascular diseases, such as age-related wet macular degeneration, a leading cause of blindness, and neurofibromatosis-2, which can lead to deafness.

References:


