

that surgery with refrigeration anesthesia is an effective method in treating gangrene of the extremities in certain elderly, emaciated, poor-risk patients." 4 references .

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MASSIE, F. M.: *Amputation with Refrigeration Anesthesia*. South. M. J. 37: 1-6 (Jan.) 1944.

"The complete anesthesia resulting from refrigeration and asphyxia is due to the absence of all metabolic changes in the cells of the affected part. They rest in a state of 'suspended animation' or 'hibernation' and because no physico-chemical changes are possible in the cell under these conditions, the cell is unaffected by any stimulus. Thus the term 'protoplasmic anesthesia' is here quite properly applied. The technic of producing this anesthesia is now becoming standardized though still undergoing modifications. . . . In our

series [14 cases] . . . the mortality was 28.5 per cent. A few years ago in the same two hospitals our mortality over a 10-year period for all diabetic amputation was 75 per cent. . . . The method is not without its weak points; errors in technic will result in incomplete anesthesia and then some form of general anesthesia will have to be added when the patient has not been prepared for it. There is more than a possibility that the asphyxia and the prolonged cold after the operation may predispose the tissues to infection after the ice bags are removed and lower their resistance to its spread. Two of our patients developed gas gangrene in the stumps, one of whom died. . . . There is no shock during or following the amputation. . . . Traumatic cases reported by other observers point to a brilliant future for the application of cold to anemic and infected tissues." 9 references.

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