cians? Or is there something else at play entirely? In the United States, where Medicare funding levels are the same in for-profit and not-for-profit nursing homes, ownership has been found to be a significant driver of staffing variations.[4,5] The research priorities that follow from our commentary are to provide more flesh to the skeleton of staffing ratios, in order to determine how to maximize the quality of care provided to our communities' most frail members.

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Thyroid hormone therapy in organ donors

Sam Shemie and associates recommend that consideration be given to using thyroid hormone therapy in all organ donors.[1] We have experimental data suggesting that administering thyroid hormones to hemodynamically stable organ donors could decrease the success of liver transplants.

In a model of ischemia–reperfusion (warm ischemia) in rats, we showed that pretreatment with thyroxine negatively affects the energetic status of the liver by reducing the preischemic and postreperfusion concentrations of adenosine triphosphate in the liver.[2] We also observed that pretreatment with thyroxine reduces the liver tissue concentration of reduced glutathione, an intracellular antioxidant, and increases the susceptibility of isolated rat hepatocytes to anoxia and oxidative stress.[2,3] Castilho and associates reported that 3,5,3′-triiodothyronine induces oxidative stress in isolated liver mitochondria, which leads to membrane thiol oxidation and inner membrane permeabilization.[4] This process is known as the mitochondrial permeability transition and is characterized by swelling and depolarization of the mitochondria, resulting in an inability to produce adenosine triphosphate.[4] There is evidence that hypothyroidism has generalized protective effects against anoxic ischemia and reperfusion injury, conditions that occur during organ storage and transplantation. In the rat, hypothyroidism reduces liver necrosis associated with cold storage, improves liver function and increases the concentration of reduced glutathione in the liver during reperfusion after cold storage;[2,3] it also protects rat kidneys from ischemia.[5]

Although these experimental data were obtained in animals and cannot be directly applied to the clinical setting, they suggest that we should consider the possibility that administration of thyroid hormones might damage human liver tissue during organ harvesting, cold storage and transplantation and therefore should not be administered to all organ donors. It is also worth considering the possibility that pharmacological hypothyroidism might protect the organs of hemodynamically stable donors during cold storage and reperfusion.

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