

formed. Postural training is a foundational element of the protocol and continues at this stage.

Finally, weeks 7 to 8 constitute complete mobilization of the upper extremity, with the goal of reaching full tension without pain or a feeling of stretching. Remaining limitations in soft tissue and joint mobility should be addressed. Therapeutic exercises include continued prolonged holds of postural muscles and plank exercises maintaining scapular neutral position with resistance when possible. Postural training in this stage involves full squats and mimicking work-related activities while maintaining neutral scapular posture.

Regarding your second question, we do not regularly perform nerve conduction studies or MRI scans of brachial plexus for patients with NTOS. We prefer upper extremity venous and arteries duplex scans for these patients to assess for vascular compression in addition to neurogenic symptoms.

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## Donor Age in Liver Transplantation: Donation after Circulatory Death



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Compared with donation after brain death (DBD), donation after circulatory death (DCD) grafts are submitted to an additional procurement warm ischemia that might lead to graft failure.<sup>1</sup> In an article recently published in the *Journal*, Doyle and colleagues<sup>2</sup> reported the experience of the Washington University group in controlled DCD liver transplantation (LT). The authors have to be congratulated for their excellent results, with a 5-year DCD liver graft survival of 80% and a low rate of ischemic cholangiopathy, the most feared complication after DCD liver transplantation. However, this article deserves to be commented on and challenged.

One of the main results of this paper is that DCD donor age greater than 40 years increases the risk of ischemic cholangiopathy.<sup>2</sup> However, the data leading to this conclusion seem insufficient. First, there is a clear selection bias; three-fourths of ischemic cholangiopathy cases occurred in the first part of the authors' experience and led to a change in policy to not permit DCD from donors older than 45 years, and importantly, a warm ischemic time of more than 20 minutes. Secondly, the statistics leading to this

conclusion are quite weak. Nowhere in the article are the results of the DCD LT from donors younger and older than 40 years compared. Table 4 presented a p value < 0.006 when analyzing the relationship between DCD donor age and development of cholangiopathy, but only 4 DCD transplant recipients developed ischemic cholangiopathy, with at least 1 young donor aged 15 years. It is therefore difficult to understand this highly significant statistical difference in the relationship between donor age and ischemic cholangiopathy in such a small series.

This issue is important because the actual deceased organ donor shortage is a clinical drama and in most Western countries, mean deceased donor age is increasing.<sup>3</sup> We recently reported our experience in DCD LT without clear donor age criteria, and the results of DCD LT from donors older than 70 years were not different compared with younger age groups in our series, with a median cold ischemic time of 4 hours.<sup>4</sup> Indeed, there is a clear tendency in experienced groups from other European countries to expand donor age criteria in DCD LT.

Donor age is no longer a clear risk factor in deceased LT.<sup>5,6</sup> Because the perfect deceased organ donor has become the exception nowadays, mortality rates on the LT waiting lists justify expanding deceased donor criteria despite potentially increased risks of morbidity and graft failure. In our view, donor age per se is not a clear-cut criterion in DCD liver donation, and DCD donors older than 40 years might provide acceptable or even excellent liver grafts if warm and cold ischemia are minimized.

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