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Letter to Editor

Spinal cord decompression: Is country of surgery a predictor of outcome?

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Dear Sir,

We read the important paper of Shamim *et al.*[5] about the question as to whether patients with spinal cord injury (SCI) benefit from spinal stabilization. We believe that the decision to perform spine surgery on patents with SCI should not be made only based on duration of hospital stay, economic issues, and neurological outcome.[4] However, we would emphasize the apparent advantage of non-operative management of SCI patients in developing countries.

In Zahedan, a city located in a poor socioeconomic province of Iran, we managed 108 patients with SCI during a 12-year period from 1994 to 2005. Of these patients, 50 were followed for more than 12 months. Assessment of outcome of these patients not only confirmed superiority of non-surgical management in patients with *complete* SCI in terms of cost and duration of hospitalization, but also, surprisingly, showed that the neurological outcome of patients with *incomplete* SCI in the non-surgical group was not different from that of the surgical group. Length of stay in surgery group of SCI patients was 11.1 ± 5.46 days, which was significantly longer than 5.8 ± 0.96 days in non-surgical patients ($P = 0.017$).

All groups of patients with incomplete SCI including those treated non-operatively, patients had early operation or cases underwent late surgery, had significant and similar improvement, when compared to the preoperative examination ($P = 0.02$), with no difference among these three groups.[2,3]

Our results differ from those of the meta-analysis of La Rosa *et al.*,[1] which concluded neurological improvement after early decompression in incomplete SCI patients compared to late decompression or non-surgical management. In this meta-analysis, 26 studies were evaluated, all of which had been performed in developed countries, with no study from developing countries. The results of this meta-analysis is also different from the study performed by Shamim *et al.*,[5] which may indicate different outcome of spinal cord decompression in developed and developing countries. Despite the limitations of the study by Shamim *et al.*,[5] such as heterogeneous cohort of patients, inconsistent prednisolone prescription, late decompression in considerable number of patients, different surgical procedures, and lack of post-operative neurologic assessment of patients, it can be hypothesized that the country where surgery is performed (developing vs. developed countries) may have an effect on the outcome of SCI patients. Thus, results of some reports on favorable outcome of patients undergoing spinal decompression/stabilization from developed countries should be interpreted carefully if they are to be used in developing countries since many pre-, intra- and post-operative factors may contribute to the outcome of these patients. Further studies from developing countries should be performed to provide better guidance for spine

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surgeons in these countries to decide whether an SCI patient is likely to benefit from spinal decompression/stabilization or not.

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Commentary

We read with interest the letter to editor titled, "Spinal cord decompression: Is country of surgery a predictor of outcome?" The authors hail from a poor socioeconomic province of Iran and report their results on managing a large number of SCI patients with a mean follow-up exceeding 12 months. First and foremost, we would like to commend the authors for the tremendous service they are providing in a resource-stricken setup. What impressed us even more is that despite their limitations, they continue to audit and critically analyze their outcomes, proving that resource deprivation is not an excuse for lack of scientific approach to patient management.

The authors share their results of managing complete SCI patients with and without surgery, validating our own results and then go on to share results from comparing neurological outcome between incomplete SCI patients with or without surgical intervention. Here, they mention that their results differ from a meta-analysis done by La Rosa *et al*., published nearly 7 years earlier, and point out that none of the studies in the meta-analysis were from developing countries.[2,3,5] Although in our own practice, we tend to agree with the recommendations of La Rosa *et al*. and other studies on incomplete SCI published more recently, we certainly agree with the authors that not all studies done in developed countries can be directly applied to developing countries. Especially in conditions where clear-cut evidence does not exist supporting one treatment modality such as that for surgical intervention in complete SCI, one must choose the management option best suited for one's own circumstances.

To propose that the country of surgery may affect outcome would not be a fair statement. Outcomes depend on a whole lot more than just the country and, even within countries, developed or developing, outcomes vary greatly from center to center. This is especially true for more complex specialties like neurosurgery, and hence the argument for developing regional referral centers for such specialties. We believe that proper referral centers with specialized care even in developing countries can produce equivalent results. Citing our own example, despite working in a resource-restricted country, we have shared our results for various surgical procedures and shown that our results do not differ markedly from the available literature.[1,4,6-9] In the absence of specialized centers or when one is forced to provide advanced care despite limitations, such as during disasters, the results are bound to be inferior and to our mind, should not be compared with the set standards. One must realize that provision of care under these circumstances is out of necessity. It is bound to have limitations, and where each surgeon wants to provide the best care to his/her patient and continues to strive for it, it is perhaps unfair to compare his/her outcomes with surgeons working in controlled environments, be it in a developing country with resource limitations or a developed one with limitless abundance of resources.

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