

Paraplegia

Letter to the Editor

Dear Sir,

I was really quite surprised to see a paper by G. G. McBride in relationship to the use of Cotrel-Dubousset rods in spinal fractures (Paraplegia 1989 27:6, 440-449).

Cotrel-Dubousset apparatus was particularly designed for scoliosis and I regret very much that surgeons have seen fit to apply this apparatus to spinal fractures, particularly spinal fractures where it is well known that better results are achieved by short fusion masses rather than long fusion masses. This has been clearly demonstrated on a number of occasions.

Therefore, I hope, you will publish this letter in the Journal of Paraplegia for I believe the use of such systems should be kept for the purpose it was designed. If internal fixation is required in spinal fractures then there is no doubt that the new pedicular screw apparatus, of which there are 1 or 2 models available now, is a much better piece of equipment. All of the patients treated with long fusions show lack of mobility, lack of dexterity, and sportsmen have less chance of undertaking sport adequately—in fact, the operative procedure itself has a very major morbidity rate—all of which can be prevented by a much more conservative approach.

Technology seems to be running away with us and thus I voice my strong disapproval. The cost of the Cotrel-Dubousset rods, in itself, must be a strong deterrent in the use of such apparatus. All the application of these rods to spinal fractures will do is to give the apparatus a poor name for overall use when it is obviously of great use in some conditions such as collapsing scoliosis, scoliosis needing correction and in instances where long fusions are required.

I hope you will voice my disapproval in the Journal.

Sir George Bedbrook, OBE
13 Colin Grove
West Perth 6005
Western Australia

Reply from Dr G. Grady McBride

For a new device or procedure to be successful it must stand the test of time and criticism by others. However, I find that the comments by Sir George Bedbrook are unwarranted.

It is surprising that Sir George believes that the Cotrel-Dubousset system should not be used for fractures since it was originally designed for scoliosis. Previous spine fixation systems were designed for purposes other than fractures. The Harrington system was originally designed for scoliosis and the Steffee plate system for low lumbar fusions. The fact that those fixation systems were later adapted for fractures illustrates the fact that all forms of spinal instrumentation are attempting to control motion in three planes in order to obtain a solid fusion.

While I attempt to limit the number of levels fused for mid or low lumbar

injuries, there seems to be little justification to do a short instrumentation and fusion in a thoracolumbar junction injury. Most of our T12 or L1 level injuries who are stabilised over 5 or 6 levels down to L2 or L3 show little or no limitations in their functional or sporting skills resulting from their fusions.

Sir George's contention that spine fracture fixation with the pedicular screw systems have proven to be better is quite debatable. After experiencing early failures with 'one level above and below' configurations, many investigators are now advocating fixation 'two levels above and two below' with the spinal plate devices. The pedicle screw systems are largely an unproven device for thoracic or thoracolumbar fractures. Passing pedicle screws into a thoracic or upper lumbar vertebra is technically very difficult and hazardous. There are a growing number of reports concerning spinal canal and dural penetration by the screws, and there seems to be a relatively higher infection and screw breakage rate with the pedicular systems. Also, fracture alignment and reduction with those systems do not appear to be as well maintained at follow-up evaluation.

Another objection by Sir George is the cost of the Cotrel-Dubousset system. Although admittedly more expensive than the older Harrington system, the higher cost of the CDI system is easily offset by more rapid rehabilitation and lower hospitalisation cost. In addition, the cost of a spinal orthosis always has to be included with the Harrington system, whereas with the CDI a brace is often not needed. Finally, it would probably surprise Sir George to know that the new pedicular systems are not cheap and are often comparable in cost to the Cotrel-Dubousset system.

In summary, although the Cotrel-Dubousset article reports on a relatively small number of patients, I believe that the CDI system will continue to prove itself as a spine fracture device for all the right reasons such as improved stability resulting in rapid mobilisation with a low complication rate. Presently I believe that it is also cost effective through lower hospitalisation costs.

I would like to thank the editor and the Journal for allowing me to respond to this letter.

G. G. McBride, MD
Orlando Orthopaedic Center
1809 Bellevue Avenue
Orlando
Florida
USA