

Manipulative Vascular Accidents in Proper Perspective, Part I

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To properly engage in a discussion of the risks associated with cervical manipulation, risks associated with other medical procedures and drug regimens must also be investigated. The following is a review of literature pertaining to morbidity and mortality related to medical procedures and drug regimens.

Stremple et al.,¹ studied postoperative morbidity and mortality rates in the Veterans' Administration hospital system for a variety of diagnoses between 1987 and 1988. The list compiled by the authors contained only those surgical procedures for which there was a legitimate presumption that the patient's death was related to the procedure performed.

- There were 428 small intestine surgeries performed during the year-long study period; 90 patients died from the surgical procedure or from postsurgical complications. The risk of dying from small intestine surgery was 21.03 percent (1 in 4.76).
- There were 4,493 colon surgeries performed during the same period; 330 patients died (1 in 14).
- The VA system performed 2,056 appendectomies between 1987 and 1988; 28 patients died from the surgery, a mortality rate of 1.36 percent (1 in 74).
- The VA system performed 7,112 cholecystectomies; 139 deaths resulting from the procedures. These results placed the mortality rate for cholecystectomy in the VA system at 1.95 percent (1 in 51).
- Steiner studied the operative mortality rate for cholecystectomy in Maryland and found that there was a 1 in 200 risk of mortality associated with this procedure.⁷

Brennan et al.,² reviewed 30,121 randomly selected, acute care, nonpsychiatric hospital records from 51 New York State hospitals in 1984. They found that adverse events occurred in 3.7 percent of all hospitalizations with 27.6 percent of adverse events due to negligence. Additionally, 70.5 percent of the adverse events gave rise to disability lasting less than six months, 2.6 caused permanently disabling injuries, and 13.6 led to death. The authors concluded that "there is substantial amount of injury to patients from medical management and many injuries are the result of substandard care." The 3.7 percent adverse event occurrence rate indicates that there were 1,114 adverse events taking place in the hospitals studied during the year-long research period. As discussed above, 13.6 percent of the adverse events resulted in death, which equates to 151 deaths in the study period. This places the death rate associated with the 51 randomly selected facilities in

New York at 0.5 percent or 1 in 200!

Iatrogenic Esophageal Perforation

In a series of 21 patients with iatrogenic perforations of the esophagus there was an overall mortality rate of 28.6 percent. Perforations of the esophagus were the result of hiatal surgical procedures, following diagnostic endoscopy, endoscopic dilation for achalasia, and foreign bodies.³

Idiopathic Scoliosis Surgery

Sponseller et al,⁴ studied the outcome of surgical treatment for idiopathic scoliosis in 46 adults over 25 years of age. They found that 18 adults (40 percent) had a minor complication from the surgery and 20 percent had a major complication such as pulmonary embolus, psuedoarthrosis, deep infection, or major re-operation. There was one death due to pulmonary embolus out of the 46 patients studied.

Pulmonary Embolism

Hospitalized patients are at increased risk for developing deep venous thrombosis and subsequent pulmonary embolism. According to King²¹, these problems have been found to be the most common preventable causes of morbidity and mortality in hospitalized patients. Data from autopsy studies indicate that pulmonary embolism is responsible for 50,000 to 100,000 deaths in hospitalized patients each year.

Iatrogenic Illness

Bedell et al., studied the incidence of iatrogenic cardiac arrests among patients hospitalized in 1981 at a university teaching hospital. During this one year study, there were 203 cardiac arrests in which resuscitation was attempted; 28 of the 203 cardiac arrests resulting in iatrogenic complications. Iatrogenic complications were considered to be errors in the use of medications, complications of procedures, or suboptimal response by physicians to emergent clinical symptoms and signs. Seventeen of the 28 iatrogenic cardiac arrest patients died.⁵

Steel et al., found that 36 percent (1 in 2.78) of 815 consecutive patients on a general medical service of a university-based hospital experienced an iatrogenic illness. In two percent of the series (16 patients), the iatrogenic illness produced death.¹⁶

Stambouly and Pollack¹³ evaluated 541 consecutive admissions to a pediatric intensive care unit and found that 4.6 percent (25 admissions) were due to iatrogenic illnesses. Drug-induced conditions accounted for 32 percent of the iatrogenic illness admissions. Complications of medical-surgical acts were responsible for 68 percent of the admissions. The mortality rate in this study for death from iatrogenic events was 1 in 27. A breakdown of the iatrogenic medical-surgical admissions revealed that four patients developed postoperative complications after tonsillectomies and adenoidectomies; one child with congenital heart disease was admitted to the pediatric intensive care unit following inadvertent laceration of the internal carotid artery during internal jugular venous cannulation prior to surgery; one neonate required closure of a deep laceration which occurred during Cesarean section delivery; and two patients developed cardiac arrests following cardiac catheterization with one patient dying as a result of the procedure.¹³

Trunet et al.,¹² prospectively studied all patients admitted to a multidisciplinary intensive care unit

to determine how many of the admissions were iatrogenic. Of the 325 patients admitted during the year, 12.6 percent (41 patients) were hospitalized because of iatrogenic disease. The breakdown of the nature of the iatrogenic errors revealed that 23 admissions were due to drug administrations, nine were due to adverse drug reactions, and 14 were due to therapeutic errors. In addition, iatrogenic disease was fatal in the case of eight patients (20 percent).

Coronary Arteriography

A multihospital survey of the complications of coronary arteriography revealed an overall mortality rate of 0.45 percent (1 in 222). The mortality rate in hospitals that performed less than 100 examinations per year was eight times higher than for those institutions performing more than 400 examinations per year.¹¹

Lumbar Surgical Risks

The Veterans Administration hospital system¹ performed 3,868 laminectomies between 1987 and 1988. Nineteen patients died from these procedures, placing the mortality rate for laminectomies performed within the VA system at 0.49 percent (1 in 204). Additionally, there were 1,643 spinal fusions performed in the VA system during the same year. Twenty-five patients died as the result of the spinal fusion procedures performed. The mortality rate associated with this procedure in the VA system was 1.95 percent (1 in 51). In one study by Oppel, there were nine intra-operative deaths and eight postoperative deaths as the result of 3,038 lumbar spine operations conducted by 15 teams of surgeons in Austria and Germany, leading to a total mortality rate of 0.5 percent (1 in 200). In another study of 2,504 lumbar spine operations for sciatica there was a mortality rate of 1.2 percent (1 in 83) documented.⁹

Stolkes et al.,¹⁰ prospectively studied 412 primary and 69 re-operations for herniated lumbar discs, and compiled a list of intra-operative and postoperative complications. In their study, one patient died from postoperative complications, placing the mortality rate in their series at 1 in 481. Deyo⁸ examined the rates of postoperative complications and mortality, as recorded in a hospital discharge registry for the state of Washington (1986-1988), for patients who had an operation on the lumbar spine. Patients with malignant lesions, fractures, or infection were excluded from the study. During the study period there were 18,122 hospitalizations for procedures relating to the lumbar spine with 84 percent involving a herniated disc or stenosis. The overall mortality rate for the study period was 0.07 percent (1 in 1,430).

Editor's note: Part II will appear in the Sept. 1, 1994 issue. Dr. McKechnie's complete references will be printed in the Sept. 1 issue.

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