The distribution and diversity of interventional pain procedures among hospitals in the State of Iowa

Amy Pearson MD, Franklin Dexter, MD, PhD, FASA
1 Department of Anesthesia, University of Iowa Carver College of Medicine, Iowa City IA

INTRODUCTION

Critical access hospitals represent 61% of hospitals in the rural United States, and 68% of hospitals in Iowa. The role of small hospitals, such as critical access hospitals, in providing interventional chronic pain procedures is unknown. We evaluated whether:

a) the diversity of interventional pain procedures offered by hospitals is related to their size and is attributable principally to lumbosacral epidural injections;

b) critical access hospitals contribute substantively to the count and diversity of pain procedures;

a) whether most interventional pain procedures performed at hospitals’ facilities are performed by relatively few proceduralists or by the cumulative activity of many clinicians.

RESULTS

The proportion of procedures that were lumbar or caudal epidural injection substantially contributed to the heterogeneity among hospitals (P < 0.00001). Hospitals performing more procedures tended to have greater diversity of types of procedures (P = 0.00008), but the strength of concordance was small (Kendall’s τ = 0.332).

The 82 critical access hospitals statewide cumulatively accounted for 23.9% of the interventional pain procedures. The critical access hospitals’ procedures were mostly (67.7%) lumbar or caudal epidural injection (P < 0.00001), greater than the 48.9% of the other 41 hospitals (P < 0.00001). Procedures were concentrated among proceduralists.

The 1.0% of proceduralists performing the most procedures performed 64.8% of procedures. The top 5.0% performed 87.7% of procedures.

DISCUSSION

Relatively few proceduralists performed the vast majority of the procedures. Although programs performing more procedures per week generally performed more types of procedures, the variability was so large that number of procedures per week cannot validly be used to infer the diversity of the hospital’s procedures. Hospitals with pain medicine programs with lack of diversity of types of procedures may provide limited options for patients, and be susceptible to changes in payment for individual procedures.

Study Design: Observational cohort study of N = 283,940 interventional pain procedures
Setting: Hospital owned facilities in the State of Iowa, July 2012 through September 2017

Methods: The diversity of types of interventional pain procedures was quantified using the relative proportions of procedures at each hospital using the Herfindahl index. Percentage of procedures that were lumbar or caudal epidural to inverse Herfindahl was determined using linear weighted least squares regression. The relationship between counts of interventional pain procedures and hospital size was quantified by Kendall tau concordances.

REFERENCES


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