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A Cost-Utility and Cost-Effectiveness Analysis of an Acute Pain Service

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Keywords:
Acute pain service; costs; personal resources; economic evaluation: cost-utility analysis; cost-effectiveness.

Abstract:
Study Objective: *To analyze, from a societal perspective, the cost-effectiveness and cost-utility of acute pain management after inception of a nurse-based Acute Pain Service (APS) in a general hospital.*
Design: *Open, observational, interventional study.*
Setting: *Postanesthesia care unit and surgical wards of a university hospital center.*
Patients: *1975 surgical inpatients who had undergone various types of surgery.*
Interventions: *Visual analog scale (VAS) pain scores and all systemic analgesics prescribed by anesthesiologists and administered by ward nurses were recorded before and after APS inception. All costs (drugs, disposal, and working time of nurses) related to the APS were identified. Pain measurements were performed by VAS every 4 hours over 3 consecutive days post-surgery and transformed into a health state scale, with 0 being equivalent to absence of pain and 10 to the worst imaginable pain. Using these data, analgesic effectiveness (cost-utility analysis) was expressed as postoperative pain days averted (PPDA) in the two surveys. To perform the cost-effectiveness analysis, we focused on postoperative complications, duration of hospital stay, and postoperative mortality rate. (Note: At the time of the study, 1 EURO _ 0.85 U.S. dollars.)*
Main Results: *VAS pain scores decreased in the post-APS phase (p _ 0.001). One the first day, PPDA was 0.075, on the second day PPDA was 0.05, and the third day PPDA was 0.0375. Cost of analgesic drugs and disposal, as well as nursing hours, increased. The incremental cost of pain management after APS inception amounted to 19 EURO per patient per day, resulting in an incremental cost-effectiveness ratio of 350.77 EURO per PPDA gained. The cost-effectiveness analysis showed minor improvement (reduction of postoperative complication rate in some surgical specialties). Duration of hospital stay and postoperative mortality rate did not change.*
Conclusions: *A hospital-wide, comprehensive, postoperative pain management program provides an overall positive result for the health care system by improving postoperative pain and morbidity. This service is cost-effective, costing 19 EURO per patient per day. A cost-utility analysis for short-term assessment of quality of life showed no benefit in determining usefulness of such a pain management program.*