

Parent-controlled analgesia for paediatric pain management

Patient-controlled analgesia, when managed by a parent whose child cannot administer the analgesia themselves, is a safe and effective method of pain relief, according to a study reported in the *Journal of Pediatric Hematology and Oncology*.

Some children cannot self-administer analgesia and have to rely on a proxy—usually a nurse—to provide the doses. Many hospitals also allow parents to act in this capacity, but until now, the safety of patient-controlled analgesia with parent proxies was not known.

In this study, investigators compared the rate of complications in patient-controlled analgesia by parent proxy against that of clinician (nurse) proxy or self-administration (standard patient-controlled analgesia) from 2004 to 2010. All children in the study had cancer or chronic haematological disease.

The study included data from 6151 patient-controlled analgesia observation days. The mean age in the overall study was 12.3 years (9.4 years in the nurse-proxy group and 5.1 years in the parent-proxy group).

Even though the parent-proxy group had the lowest mean age—a fact that itself poses a higher risk of complications—these patients actually had the lowest rate of adverse events (0.62% in the parent-proxy group vs 0.96% in the nurse-proxy group vs 1.94% in the standard patient-controlled analgesia group).

“We found parent-controlled patient-controlled analgesia to be as safe as nurse patient-controlled analgesia and self-administered patient-controlled analgesia in a health-care environment based on institutional guidelines and policies, caregiver education, parent education, high nurse-to-patient ratio, and

ongoing quality improvement processes”, says lead investigator Doralina Anghelescu (St Jude Children’s Research Hospital, Memphis, TN, USA).

“I believe the results—that proxy patient-controlled analgesia by nurses or parents is safe—are both comforting and expected. Parents are often able to rapidly respond [to their child’s pain] given their constant presence at the patient’s side”, says Robert Wells (MD Anderson Children’s Cancer Hospital, Houston, TX, USA).

Both Anghelescu and Wells suggest that parents of children with cancer or haematological disease might be accustomed to monitoring their child and were quite cautious with pain relief, which could have led to the lower adverse events rate in this group.

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For more on the **study on parent-managed PCA** see *J Pediatr Hematol Oncol* 2012; published online July 2.
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Natural gamma radiation and childhood leukaemia

An increased risk for childhood leukaemia has been shown to be associated with gamma radiation from natural sources. A recent study examined background radiation exposure in 27447 patients with childhood cancer in England, Scotland, and Wales diagnosed between 1980 and 2006 and matched with 36793 controls.

Analyses were based on records of childhood cancers diagnosed in children younger than 15 years and recorded in the National Registry of Childhood Tumours. The indoor gamma-ray dose rates for patients and controls from birth until time of diagnosis were based on a UK national survey of natural background radiation in dwellings.

The investigators reported a progressive increase in the risk of leukaemia with cumulative gamma-ray dose, with a significantly raised

risk occurring at doses greater than 4.1 mGy.

To account for shielding of the red bone marrow by the body, absorbed gamma rays were expressed as red bone marrow equivalent doses in mSv. The relative risk of childhood leukaemia increased by 12% (95% CI 3–22; two-sided $p=0.01$) per mSv of cumulative red bone marrow dose of natural gamma radiation.

No association with other childhood cancers was reported for natural gamma radiation or background radon, or between leukaemia and radon.

Study author Gerald Kendall (Childhood Cancer Research Group, University of Oxford, Oxford, UK) said, “This study provides good evidence that there are effects of radiation at these low rates, whereas some people have said there are no effects at all”.

He added, “A follow-up study is being planned that will include more cases and controls and that will go forward beyond 2006 as well as backwards to 1962. The second study will have better estimates of gamma ray exposure than this study, which used the average gamma radiation exposure in each of about 450 British county districts.”

Louise Parker (Departments of Medicine and Paediatrics, Dalhousie University, Nova Scotia, Canada) said: “This was a very carefully conducted study by a group of researchers who are leaders in the field, that involved a very large number of cases. This is one of the first papers ever to demonstrate the quantitative relationship between childhood leukaemia and background gamma radiation in a convincing way.”

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For more on the **National Registry of Childhood Tumours** see <http://www.ccr.gov.uk/datasets/nrct.htm>