Background Current management of seizures at the end of life utilises sedating medications (midazolam and phenobarbital) administered via the subcutaneous route. The subcutaneous administration of levetiracetam presents the possibility of managing seizures at the end of life without causing sedation.

Methods A comprehensive literature review was performed and this data was combined with data from a prospective observational audit undertaken in a regional palliative care network. A search of EMBASE, Medline, CINAHL, ClinicalTrials.gov and the WHO International Trials Registry for “subcutaneous AND levetiracetam” or “subcutaneous AND keppra” or “levetiracetam SC” on the 16th of July 2015 and updated the search on the 2nd of August 2016.

Results 7 papers were identified from the literature review; 4 case reports and 3 observational case series; reporting on a total of 33 cases where subcutaneous levetiracetam was administered.

We report 20 further cases of subcutaneous levetiracetam administration from a prospective observational case series. Doses ranged from 250 mg-4000mg daily. Oral to subcutaneous conversion ratios where stated were 1:1. Levetiracetam was reported as the sole administered anti-epileptic drug (AED) in 8 cases and no seizures were reported until death in 5 cases. 5 were switched back to enteral Levetiracetam. In 7 cases, Levetiracetam was combined with AEDs to provide seizure control at the end of life. There was one report of a sterile abscess after 25 days of continuous subcutaneous administration.

Conclusions A combined analysis of 73 reported cases worldwide of subcutaneous levetiracetam administration suggests it may have a role in the management of seizures at the end of life. However randomised controlled trials are urgently needed to establish the efficacy and tolerability of subcutaneous levetiracetam administration. If proven to be safe and effective subcutaneous levetiracetam offers the potential to prevent and treat seizures without causing unnecessary sedation at the end of life.