



## Letter to the Editor

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Dear Editor,

The article entitled “Lightening up before death” by Macleod (2009) captured our attention, as we observed the same phenomenon in 5 terminally ill patients in our home-based palliative care unit over approximately 3 years. All cases showed a similar clinical pattern reported by Macleod (2009) and were classified by our team as patients experiencing an “energy surge” (ES).

The existing literature sparked our team’s interest in ES (Emanuel et al. 2010; Nahm et al. 2012; Schreiber and Bennett 2014; Wholihan 2016), specifically the one published by Macleod (2009), which led to a complete retrospective chart review of our cases to analyze relevant clinical information, medication use, and clinical status, during and after ES, for both patients and their caregivers.

ES, also coined as premortem surge, terminal lucidity, or terminal rally, is a deathbed experience reported as a sudden, inexplicable period of increased energy and enhanced mental clarity that can occur hours to days before death, varying in intensity and duration (Schreiber and Bennett 2014).

ES has not been extensively researched, and much of our current knowledge results from anecdotal evidence (Emanuel et al. 2010; Macleod 2009; Nahm et al. 2012). It seems that ES does not pose any suffering or distress for patients experiencing it (quite the opposite) but can disturb caregivers who at times may be confused and can experience feelings of uncertainty, unrealistic hope, anxiety, denial, and confusion.

Although it might be scientifically relevant to investigate the underlying mechanisms leading to the phenomenon, it is most important to identify ES clinical patterns (Table 1) to help prevent caregivers’ unnecessary distress while caring for their loved ones during the end of life.

After analyzing our cases, we found that the prevalence of this event was low. As seen in Table 2, we discovered several common characteristics of the ES experience, as well as common reactions and feelings of caregivers.

All patients had advanced and progressing terminal illnesses, with significant physical and cognitive deterioration, decreased appetite and food intake, poor performance status, and dependency in daily care. Although patients were taking opioids and antipsychotics, such potentially sedative drugs did not inhibit patients’ awakening and lucidity. As also shown by Macleod (2009), there appeared to be nothing particularly remarkable about the patients’ foreseeable clinical status or any particular triggering family event; in all patients, the onset was sudden (even during night/dawn), and no apparent prodromes or precipitating factors indicated that such a phenomenon would occur. It is noteworthy that in all cases, the same prescribed drug therapies were maintained, without dose escalation or additional PRN doses required. This reflects the so-called “honeymoon period,” with a stabilization of symptoms during ES. Heightened alertness, lucidity, and energy, accompanied by fluent and articulated speech with normal memory and mental abilities, are other common characteristics patients showed. Additional features of the ES were related to recuperating oral function and appetite. Food cravings for particular pleasant foods in normal quantities were frequently observed. Although patient mobility was impaired prior to ES, 5 patients regained the ability to walk, performed intimate personal care in the water closet, or sat on the couch or dining table with their family and friends. Another common feature was the ability to communicate clearly, to resolve unfinished tasks, and to “set the house in order,” thus alleviating caregiver after-death burden. After ES, all patients had a clinical decline and had no recollection of the event. ES tended to last an average 27 hours, and death occurred after an average of 8 days, which is in line with the literature (Wholihan 2016).

**Table 1.** Clinical pattern of energy surge based on observational data – a proposal

Domains	Characteristics prior to ES	Characteristics during the ES
Overall clinical situation	<ul style="list-style-type: none"> <li>– Clinical deterioration</li> <li>– Last days or hours of life</li> </ul>	<ul style="list-style-type: none"> <li>– Performance status overall improvement</li> <li>– No apparent disease progression or clinical deterioration</li> </ul>
Neurologic	<ul style="list-style-type: none"> <li>– Somnolence</li> <li>– Lethargy</li> <li>– Adynamia</li> <li>– Semiconscious</li> <li>– Decreasing level of consciousness</li> <li>– Possible presence of hallucinations</li> </ul>	<ul style="list-style-type: none"> <li>– Awareness</li> <li>– Increased alertness, lucidity, and atypical energy</li> <li>– Recuperating memory capacity</li> <li>– Watching television</li> </ul>
Communication	<ul style="list-style-type: none"> <li>– Severe communication impairment</li> <li>– Severe speech impairment</li> <li>– Limited vocabulary, short sentences</li> </ul>	<ul style="list-style-type: none"> <li>– Clear and fluent speech</li> <li>– Normal vocabulary and sentences</li> <li>– Humorous moments</li> </ul>
Physical	<ul style="list-style-type: none"> <li>– Physical dependency</li> <li>– Bed bound</li> <li>– Dependency in daily activities/hygiene</li> </ul>	<ul style="list-style-type: none"> <li>– Less physical dependency</li> <li>– Ability to walk again</li> <li>– Sitting on couch, dining table,</li> </ul>
Oral intake/appetite; Ability to swallow	<ul style="list-style-type: none"> <li>– Impaired/no oral intake</li> <li>– Anorexia</li> <li>– Dysphasia</li> </ul>	<ul style="list-style-type: none"> <li>– Normal oral intake</li> <li>– Increased appetite/No anorexia</li> <li>– Food craving</li> <li>– Asking for particular foods</li> <li>– No dysphasia</li> </ul>
Symptoms medication	<ul style="list-style-type: none"> <li>– Symptom distress might occur</li> <li>– Might be under sedation</li> <li>– Might be taking opioids, sedatives, hypnotics, anti-emetics</li> </ul>	<ul style="list-style-type: none"> <li>– No symptoms distress</li> <li>– Not sedated</li> <li>– No drug escalation, no PRN doses</li> </ul>
“Setting the house in order”	–	<ul style="list-style-type: none"> <li>– Resolving unfinished tasks (bank accounts, insurances, e.g.)</li> <li>– Funeral plans, e.g.</li> <li>– Ease the burden on others</li> </ul>
Enjoying the moment together	–	<ul style="list-style-type: none"> <li>– Being with family and friends</li> <li>– Farewell</li> <li>– Sharing stories and memories together</li> </ul>
		
Sudden, inexplicable onset		
“Honeymoon,” pleasant period for patient		
Patient has no apparent recollection of ES		
Expect clinical decline in hours or days		
Open communication and empathetic listening to caregivers		
Explain possible causes and talk about expected decline and death after ES		
Encourage caregivers to enjoy ES while it lasts		

ES, energy surge; PRN; as needed.

The clinical implications of the phenomenon of ES are significant, since the event can have great impact on caregivers and family. ES allowed moments of memory sharing and farewell but only after the event was adequately explained to caregivers. Although loved ones appreciated ES as a pleasant experience and a “last

gift” to enjoy, it was for most caregivers a distressing, alarming, and confusing period. In analyzing caregiver reactions and emotions after observing the unexpected energy burst of their loved ones, the initial reaction was distressing feelings of anxiety, doubt, and unrealistic hope. Open communication and empathic

**Table 2.** Characteristics of patients experiencing energy surge

Age	Gender	Diagnosis	Clinical situation prior to ES	Medication prior to ES	Medication during ES	Characteristics of ES	Duration, h	Clinical situation after ES	Time to death, days	Caregivers' reactions after observing ES	Caregivers' reactions/situation after health provider's explanation
68	F	Metastatic breast cancer	<ul style="list-style-type: none"> <li>- cancer progression</li> <li>- bed bound</li> <li>- dysphasia/↓ oral intake</li> <li>- ↑ periods of sleep and lethargy (semiconscious state)</li> <li>- occasional visual hallucinations</li> </ul>	24 h SQ EIP: - 70 mg morphine - 60 mg scopolamine - 40 mg metoclopramide PCA PRN: morphine 0.75 mg, q10m	24 h SQ EIP: same drugs and doses Morphine PCA PRN: none	<ul style="list-style-type: none"> <li>- sudden onset - at dawn</li> <li>- ↑ alertness/lucidity/energy</li> <li>- ↑ appetite/food craving</li> <li>- no dysphasia/normal oral intake</li> <li>- asking for particular foods</li> <li>- articulated and fluent speech</li> <li>- completing tasks</li> <li>- resolving post-mortem and aftermath concerns (ease the burden about funeral)</li> <li>- ability to walk again<sup>a</sup></li> <li>- saying goodbye</li> <li>- moments of humor - jokes and popular sayings</li> </ul>	48	<ul style="list-style-type: none"> <li>- Clinical decline</li> <li>- no ES recollection</li> </ul>	9	<ul style="list-style-type: none"> <li>- hope in cure</li> <li>- anxiety</li> <li>- feelings of doubt and confusion</li> <li>- telephone call to the team reporting "general improvement"</li> </ul>	<ul style="list-style-type: none"> <li>- acceptance</li> <li>- ↓ anxiety</li> <li>- "enjoying the moment till it lasts"</li> <li>- explanation helped "clearing the fog"</li> </ul>
72	M	Metastatic gastric cancer	<ul style="list-style-type: none"> <li>- bed bound</li> <li>- no oral intake</li> <li>- ↑ periods of sleep and lethargy (semiconscious state)</li> <li>- severe adynamia</li> <li>- occasional visual hallucinations</li> </ul>	Fentanyl 37.5 mcg/h Levomepromazine 3 mg, id PRN: morphine 10 mg, q1h	Same drugs and doses Morphine PRN: none	<ul style="list-style-type: none"> <li>- sudden onset</li> <li>- ↑ alertness/lucidity/energy</li> <li>- ability to walk again<sup>b</sup></li> <li>- ↑ appetite/food craving</li> <li>- asking for particular foods</li> <li>- ↑ oral intake</li> <li>- eating at the dining table with family</li> <li>- seeing family and watching the news</li> <li>- articulated and fluent speech</li> <li>- setting issues in order - funeral plans</li> <li>- discussing wish fulfillments</li> </ul>	36	<ul style="list-style-type: none"> <li>- Clinical decline</li> <li>- no ES recollection</li> </ul>	9	<ul style="list-style-type: none"> <li>- unrealistic hope</li> <li>- ↑ anxiety</li> <li>- "Are more cancer treatments possible?"</li> <li>- feelings of confusion</li> </ul>	<ul style="list-style-type: none"> <li>- realistic hope</li> <li>- explanation helped "clearing the doubts"</li> <li>- revisiting goals of care</li> </ul>
74	M	Metastatic pancreatic cancer	<ul style="list-style-type: none"> <li>- cancer progression</li> <li>- bed bound all day</li> <li>- no oral intake</li> <li>- malignant bowel obstruction</li> <li>- nausea/vomits</li> <li>- ↑ somnolence</li> </ul>	48 h SQ EIP: - 100 mg morphine - 5 mg haloperidol - 60 mg metoclopramide PRN: morphine 10 mg, q1h	48 h SQ EIP: same drugs and doses Morphine PRN: none	<ul style="list-style-type: none"> <li>- sudden onset</li> <li>- ↑ lucidity</li> <li>- ability to walk again<sup>c</sup></li> <li>- ↑ appetite/food craving</li> <li>- asking for particular foods</li> <li>- normal oral intake</li> <li>- seeing friends and watching television</li> <li>- fluent speech</li> <li>- setting bank issues in order</li> </ul>	20	<ul style="list-style-type: none"> <li>- Clinical decline</li> <li>- no ES recollection</li> </ul>	4	<ul style="list-style-type: none"> <li>- denial</li> <li>- feelings of misbelief</li> <li>- ↑ anxiety</li> <li>- doubts - "why?"</li> <li>- EIP drugs seen as potential cure and treatment for cancer</li> </ul>	<ul style="list-style-type: none"> <li>- acceptance</li> <li>- ↓ anxiety</li> <li>- "Thank you for leading us along the path"</li> <li>- revisiting goals of care</li> </ul>

(Continued)

Table 2. (Continued.)

Age	Gender	Diagnosis	Clinical situation prior to ES	Medication prior to ES	Medication during ES	Characteristics of ES	Duration, h	Clinical situation after ES	Time to death, days	Caregivers' reactions after observing ES	Caregivers' reactions/situation after health provider's explanation
54	M	Pseudomyxoma with peritoneal carcinomatosis	<ul style="list-style-type: none"> <li>- aggressive cancer progression</li> <li>- ↑ physical dependency</li> <li>- dysphasia/↓ oral intake</li> <li>- daily somnolence</li> <li>- severe adynamia</li> <li>- abdominal pain</li> <li>- ascites</li> </ul>	24 h SQ EIP: - 30 mg furosemide - Fentanyl 35 mcg/h PRN: morphine 10 mg, q1h	24 h SQ EIP: same drugs and doses Morphine PRN: none	<ul style="list-style-type: none"> <li>- sudden onset</li> <li>- ↑ alertness/energy</li> <li>- ↑ appetite/food craving</li> <li>- asking for particular foods</li> <li>- ↑ oral intake</li> <li>- watching television</li> <li>- fluent speech</li> <li>- conversation with his children</li> <li>- setting insurance issues in order</li> <li>- bank account issues</li> </ul>	12	<ul style="list-style-type: none"> <li>- Clinical decline</li> <li>- no ES recollection</li> </ul>	10	<ul style="list-style-type: none"> <li>- unrealistic hope</li> <li>- mixed and conflicting feelings: happiness vs fear</li> <li>- religious belief of divine cure – “a miracle”</li> </ul>	<ul style="list-style-type: none"> <li>- acceptance</li> <li>- seize the moment of lucidity</li> </ul>
53	M	Metastatic lung cancer	<ul style="list-style-type: none"> <li>- malignant bowel obstruction</li> <li>- cough bound all day</li> <li>- nausea</li> <li>- ↑ dysphasia/↓ oral intake</li> <li>- occasional visual and auditory hallucinations</li> <li>- ↑ somnolence</li> </ul>	48 h SQ EIP: - 200 mg morphine - 75 mg levomepromazine - 60 mg metoclopramide - 120 mg scopolamine PRN: fentanyl 200 µg, q15 min	48 h SQ EIP: same drugs and doses; Fentanyl PRN: none	<ul style="list-style-type: none"> <li>- sudden onset – at dawn</li> <li>- ↑ lucidity/energy</li> <li>- ↑ appetite/food craving</li> <li>- normal oral intake</li> <li>- ability to walk again<sup>d</sup></li> <li>- fluent speech</li> <li>- conversation with his wife</li> <li>- setting issues in order</li> <li>- conversation about continuing cancer treatments – wanting radiotherapy again</li> </ul>	20	<ul style="list-style-type: none"> <li>- Clinical decline</li> <li>- no ES recollection</li> </ul>	10	<ul style="list-style-type: none"> <li>- denial</li> <li>- confusing moment</li> <li>- “bitter-sweet moment”</li> <li>- uncertainty</li> <li>- unrealistic hope</li> <li>- doubts: “should we call the radiotherapy hospital department?”</li> <li>- ↑↑ anxiety</li> </ul>	<ul style="list-style-type: none"> <li>- ↓ anxiety</li> <li>- acceptance</li> <li>- revisiting goals of care</li> </ul>

EIP, elastomeric infusion pump; ES, energy surge; F, female; h, hours; id, once daily; M, male; m, minutes; PCA, patient-controlled analgesia; PRN, as needed; SQ, subcutaneous.

<sup>†</sup> increased; ↓, decreased.

<sup>a</sup>From bed to the water closet.

<sup>b</sup>From bed to the dining room.

<sup>c</sup>From bed to the television room and sitting on the couch.

<sup>d</sup>From couch to the balcony.

listening were essential in ameliorating caregivers' confusing feelings, thoughts, and misbeliefs. Explaining the current knowledge on ES (although limited) was vital in reducing distress, confusion, and uncertainty, helping caregivers to put this experience into proper perspective and to appreciate this serene moment of sharing and saying goodbye.

In summary, identifying the patterns of ES and its common manifestations among the dying and openly communicating about the phenomenon can effectively reduce caregivers' suffering and distress, offering the opportunity to embark on a shared and meaningful last journey.

Palliative care providers should be alert to the possibility of ES in their dying patients to intervene early with families and guide them gently and positively through this particular event. Providers should also carefully analyze ES events when they occur in order to add to the limited knowledge base around this unusual deathbed phenomenon. Our report can add preliminary observational data to help clinicians and their practice.

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