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Case Report

A Case Report: Subtle Indicators of Dying and Death in a Stroke Patient

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Abstract

Predicting mortality can be difficult especially in patients requiring chronic, complex care. In the long-term care environment, researchers have identified both early signs and signs of pending death. On occasion, scales are also used to predict the timeliness of death. Indicators of death in the home environment is often unacknowledged or blurred by palliative care.

Case report: This case study describes the death of a 95-yr old stroke patient who passed away naturally at home. Subtle indicators of his pending death included increased lethargy, decreased skin integrity, a reduction in urine output, edema, and lastly, brief bouts of asthma. It is likely that these signs were related to a progressive decline in heart function culminating in cardiorenal syndrome and heart failure.

Conclusion: As more individuals are opting to live at home for as long as possible, more research is required to make individuals aware of dying and pending death. It is possible, as in this case study, that what is observed and reported in long-term care and in the hospital environment may not be the same as in the home environment.

Keywords: Dying; Death; Home Care; Cardiorenal Syndrome

Introduction

The majority of elderly patients with chronic, complex medical conditions reside in either a long-term care facility or are hospitalized when their health deteriorates or declines [1]. In these settings, there are often clinical indicators (e.g., vital signs, blood work results) or clinical measurement tools (the Minimum Data Set-Changes in Health, Endstage Disease and Signs and Symptoms (MDS-CHESS) Scale or the Minimum Data Set Mortality Risk Index) that the care provider may use to determine or predict when end of life may ensue [2,3]. There are only a few individuals with chronic, complex health care conditions that stay at home until their time of death. As such there is minimal information available on possible signs/symptoms of pending death in the home environment. Albeit, clouded by the complex medical conditions these types of patients may have, there may be distinct physiological sequelae that indicate significant deterioration is occurring and can signal to the care provider that death is imminent. This article presents a case report of dying and death at home in a 95-year old hemiplegic individual from an observational perspective highlighting the subtle changes in health status that occurred in the process.

Case Report

This report describes the dying phenomena of a 95-year old male (OW). At the age of 91, OW had sustained a severe cerebrovascular accident of the internal capsule on the left side of his brain rendering him hemiplegic on his right side and dysphasic. For the past four years, the patient OW resided, and was cared for, in his home by care providers and his daughter who is a registered nurse. OW was fairly healthy until his 90's. His medical history included

mild hypertension, skin cancer, benign prostatic hypertrophy, hypothyroidism, right hip fracture, congestive heart failure due to cardiomyopathy and urinary tract infections frequently leading to repeated bouts of sepsis and lastly, a major stroke. His medication use included bisoprolol (2.5 mg), aspirin (81 mg) and synthyroid (175 mcg) daily. Ciprofloxacin (250 mg q 12 hr) and furosemide (20 mg q 24 hr) were prescribed for urinary tract infections on an "as required" (prn) basis.

Many of the conditions described above were treated and/or managed successfully during the lifetime of the patient. The patient had skin cancer lesions successfully removed from his face, had a trans-urethral resection of the prostate gland (TURP) performed to alleviate the benign prostatic hypertrophy, had a partial hip replacement to correct the fractured hip and, over time, recovered from congestive heart failure.

Mild hypertension and hypothyroidism were controlled by medication and once his care providers were aware of the signs of urinary tract infections and were able to administer antibiotics as required, the repeated bouts of sepsis were eliminated. Lastly, the patient had to learn to adapt to his disability succumbed through the stroke he had acquired. The patient could not move his right side of his body, nor communicate with sentences that were longer than two to three words. He could, however, understand everything and could make his desires known by gestures and nods of his head.

During the last few weeks of his life, subtle changes were observed in his health status which only retrospectively could be connected with the gradual deterioration of bodily processes and subsequently dying. This case is unique in that OW's subjective experiences could not be verbally expressed due to his physical condition. The physical signs which could be observed by the care provider included increased lethargy, decreased skin integrity, decreased urine output, edema, and intermittent bouts of asthma attacks.

Increased lethargy

Due to his condition, OW spent a lot of time sleeping. During the last few weeks the amount of time OW spent sleeping was substantially increased. OW spent most of his daytime sleeping. Albeit, since stroke patients can have a decrease blood flow to the brain and limited oxygen supply to the area near the infarct [4] contributing to sleepiness and lethargy, this sign was not alerting to the care providers.

Skin breakdown

During the last few weeks prior to his death, OW had developed skin lesions which were slow to heal. One lesion, that was located on his back (located beside the right scapula), developed from irritation from a label on the sling that was used to transport OW using a Hoyer lift. This lesion had developed to the equivalency of a stage 4 pressure sore (penetrating into the muscle layer). Despite proper wound care, the wound did not progress in healing. In addition, there was a wound on his right elbow that developed due to an injury that occurred when his elbow was scrapped alongside the arm rest of the wheel-chair. This lesion was at stage 2, involving partial loss of the dermis. A retrospective cohort study indicated that increasing age was associated with a worsening of pressure injuries and a reduction in healing [5]. After learning that, it was understood then by the care providers that these injuries might take a long time to heal (if they were to heal at all). However, OW's gums were susceptible to gingivitis and frequent bleeding occurred when his teeth were brushed. This last sign only occurred during the last week of life.

Decreased urine output

The most notable change in health status was a reduction in urine output that occurred in the week prior to his death. As OW was incontinent, this could be assessed regularly. Despite drinking sufficient fluids, OW progressively had a decrease in urine output during the week prior to his death. Moreover, on the day that he died, there was no urine output, despite the fact that he was given a diuretic in the morning. This sign was the most disconcerting for the care providers and could not be explained. It was thought that perhaps OW was not being given sufficient fluids or that he had been given furosemide on a regular basis previously. It turns out that it was neither of this, it was most likely a reduction in perfusion of the kidneys due to failing of his heart [6].

Edema

As a result of the reduction in urine output, OW also began to retain water during his last week of life. Edema began to develop in areas of the body that were gravity dependent. For example, when positioned on his left side, fluid build-up occurred along the left side of his abdomen and in his left arm. However, this resolved when he was repositioned. Overall, OW appeared to have gained weight. His face appeared fuller and some care providers commented that OW appeared to have gained weight over the past week.

Bouts of asthma

During the week prior to his death, OW experienced two bouts of what appeared to be asthma attacks. As OW did not have asthma, this response appeared unusual. Although the bouts of shortness of breath accompanied with wheezing occurred during or just after eating, it was dismissed as having some food lodged in the trachea, triggering a cough reflex, shortness of breath and wheezing symptoms.

OW eventually passed in the evening with his family at his side during his dinner. The only indicator that something was not right (as OW could not speak well) was slight moaning as he was turned from his back to his side and back again to his back when he was being changed prior to his transfer to his wheel chair. He may have mumbled something, which only after his passing was interpreted as "I think I am having a heart attack". The emergency response team was called and CPR was performed as OW was a full code which is what he had wanted, but resuscitation efforts failed.

Discussion

Interestingly, although there are clinical indicators and measurement tools to predict the occurrence of death, use of these indicators may not have predicted death in this scenario nor may they predict the timeliness of death of chronic, complex-care individuals living at home. A study by Cable-Williams and Wilson (2014) [1], indicate that in long-term care, there are early signs of impending death as well as signs indicating that death is near. The early signs include a reduction in social activities, a reduction in mobility with increased bed-time, reminiscing of predecessors and a reduction of food and fluid intake. Due to OW's physical condition, many of the early indicators were not useful. Moreover, OW had no change in appetite nor fluid intake (consuming the usual amount prior to his death).

The research of Cable-Williams and Wilson (2014) [1] also recognized that there are more immediate indicators of pending death. Signs of pending death included a reduction in the level of consciousness, changes in breathing patterns, abnormal body temperature and skin mottling (in the extremities). OW did show some signs of changes in consciousness, however, these changes were difficult to discern from the stroke. There also were two bouts of asthma attacks, but nothing thought to be out of the ordinary (assuming it was precipitated by a cough reflex).

Use of measurement tools such as the MDS-CHESS scale and the 6-Month Minimum Data-Set Mortality Risk Index were not particularly useful in this scenario either. The CHESS Score is dependent upon lab measures, presence of a do-not-resuscitate order, a physician visit or change in physician order within the last two weeks, presence of parenteral IV lines, IV medications, suctioning, oxygen use and use of pain medications. Most of these are not applicable in the home environment and all of these did not apply to the present case study described. Given the criterion set out in the 6-Month Minimum Data-Set Mortality Risk Index (including the presence of various diseases, age, hydration status, activities of daily living, etc.,) OW was predicted to expire six-months following his stroke. This did not happen and he lived almost four years following his stroke.

What is notable in this case study is that there was a very gradual decline in heart function that most likely lead to the death of OW. Despite the fact that heart rate was normal, capillary perfusion was initially reduced leading to a reduction in blood flow to the skin and a decrease in wound healing. This was accompanied by a decreased brain perfusion and oxygen supply as indicated by OW's lethargy and sleepiness. The peripheral, gravity-dependent edema represented a reduction in venous return to the heart. The reduced renal output may have been associated with the cardiorenal syndrome (CRS), whereby the dysfunction in one organ (the heart) can exacerbate the function of the other (the kidney) [6]. In this case, heart failure most likely led to acute renal failure. Lastly, the asthma attacks observed may have been simply a consequence of aspiration of food contents.

Conclusion

Although few chronic, complex care clients end up dying at home, there is a need for the establishment of indicators or tools for predicting pending death. Use of the 6-Month Minimum Data-Set Mortality Risk Index is helpful for individuals to prepare that death is in the near future, but a scale indicating death is imminent would be useful. This case study is interesting in that the care providers were not able to get any insight from the patient as communication was difficult. Physiological indicators were the only signs that could be relied upon. If blood pressure had been taken, it might have been declining. However, HR was the only parameter measured and it was normal. In this case report, the decline in urine output was the main indicator that the heart was failing. However,

given the age and physical status of the patient, it is unlikely that any intervention during this time would have altered the outcome.

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