Association between resilience, acute stress symptoms and characteristics of family members of patients at early admission to the intensive care unit

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ABSTRACT

Objectives: Resilience in family members of patients in the intensive care unit (ICU) suppresses their severe stress and post-traumatic stress symptoms (PTSS). However, little is known about the experiences of family members of patients admitted to the ICU. This study aimed to determine the level of resilience in family members of patients admitted to the ICU and to examine the association between resilience and family member and patient characteristics.

Methods: In this cross-sectional study, we approached family members (N = 144) of patients admitted to an ICU in the previous 24 h. We obtained demographic data from all participants as well as the patients clinical characteristics, and all participants completed the Impact of Event Scale-Revised (IES-R) and the Connor-Davidson Resilience Scale (CD-RISC).

Results: The mean CD-RISC score was 48.5 (standard deviation = 16.1). Twenty-three of the 77 (29.9%) family members had an IES-R score of 25 or higher. In multiple regression analysis, a significant negative relationship was observed between resilience and PTSS (B = –11.98, β = –0.27; p = .01), and the variables correlated with the CD-RISC were age of participant (B = 4.752, β = 0.26; p = .021), sex of the patient (B = 10.09, β = 0.25; p = .015) and participants with a history of mental disorder (B = –23.41, β = –0.25; p = .024). Multiple regression analysis also showed that this model explained 28.3% of the variance in total CD-RISC scores as resilience.

Conclusions: Low resilience predicted PTSS among family members of ICU patients. This may indicate that resilience reduces the onset of PTSS.

1. Introduction

Several reasons, including sedation, ventilator use, delirium, or coma, may explain why patients admitted to the intensive care unit (ICU) are unable to communicate with others (McAdam & Puntillo, 2009). According to a survey of healthcare facilities in Japan, the number of operations performed on patients increased between 2002 and 2005, and the number of ICU beds increased between 2008 and 2014 (Ministry of Health, Labour & Welfare Minister's Secretariat Statistics & Information Department, 2005, 2011, 2014).

Family members of patients admitted to the ICU are known to experience severe stress, and after seeing the patient's condition in the ICU, for example, being covered in blood and/or connected to an array of medical devices, some family members may also experience mental shock, especially when comparing the patient's current condition to that before their admission to the ICU (Pochard et al., 2005). Due to these experiences, family members of ICU patients may be prone to developing psychological stress, which is referred to as post-intensive care syndrome-family (PICS-F). PICS-F is a set of symptoms that includes post-traumatic stress symptoms (PTSS), post-traumatic stress disorder (PTSD), anxiety, depression and complicated grief (Davidson, Jones, & Bienvenu, 2012). Family members of ICU patients play two key roles in patient care (Azoulay et al., 2004; White, Engelberg, Wenrich, Lo, & Curtis, 2007). First, they must listen to explanations from the healthcare providers regarding the therapeutic options available to the patient, and second, they have to act as proxy decision-makers for the patient based on what they hear about the prognosis. These life-influencing roles are very important and can carry a severe

psychological burden. In such situations, resilience is a factor that has received significant attention in terms of PICS-F.

Resilience is a complex construct describing a person's ability to positively adapt to a stressful or traumatic situation. Several researchers have defined resilience in various ways. Rutter (1987), who initially described resilience, defined it as "The positive pole of individual differences in people's response to stress and adversity". Bonnano (2004) defined it as the ability to maintain a normal equilibrium state in extreme adverse conditions. In 2003, Connor and Davidson (2003) reported that resilience suppresses PTSD and defined it as "the quality in individuals that makes them able to weather difficulties well, allowing them to develop from the experience." Connor and Davidson (2003) also developed the Connor-Davidson Resilience Scale to measure resilience.

Resilience first became a topic of research in the 1950s. In the 1970s, the subjects were usually poor people, children of parents with mental illness and high-risk children (Rutter, Tizard, Yule, Graham, & Whitmore, 1976). In the 1990s, the subjects were military personnel (Bartone, 1999; King, King, Fairbank, Keane, & Adams, 1998; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009; Waysman, Schwarzwald, & Solomon, 2001), traffic accident victims (Nishi, Matsuoka, & Kim, 2010) and disaster victims (Pérez-Sales, Cervellon, Vazquez, Vidales, & Gaborit, 2005; Tsuno, Oshima, Kubota, & Kawakami, 2014). The resilience of family members of patients with serious illnesses was first investigated in the 1990s (Wyman, Cowen, Work, & Parker, 1991). In the 2000s, a study involving caregivers of patients with HIV (Bunupuradah et al., 2012; Nichols et al., 2000), dementia (Dias et al., 2016; Haley et al., 2008; Lavretsky, Siddarth, & Irwin, 2010), Alzheimer's disease (Wilks & Croom, 2008), cancer (Wu, Liu, Li, & Li, 2016) and those receiving palliative care (Giesbrecht, Wolse, Crooks, & Stajduhar, 2015; Sanderson et al., 2013) was conducted.

Recently, Sottile, Lynch, Mealer, and Moss (2016) researched the resilience of family members of patients admitted to the ICU. That study surveyed the relationship between resilience and psychological burden in the family members of patients admitted to the ICU at least 48 h after the patient had been admitted. Sottile et al. (2016) reported that 49% of participants were resilient (based on Connor-Davidson Resilience Scale [CD-RISC] scores; a score higher than 82 identifies individuals as being resilient), and that a significant relationship was apparent between resilience and fewer symptoms of anxiety (odds ratio [OR] = 0.19; p = .001), depression (OR = 0.17; p < .0001), and acute stress (OR = 0.23; p = .005). Resilience remained independently associated with family member satisfaction with ICU care on multivariate analysis (β = –2.2; 95% confidence interval [CI]: 0.61–3.83; p = .007) (Sottile et al., 2016).

Shaffer, Riklin, Jacobs, Rosand, and Vranceanu (2016) researched the association between resilience and mental burden in caregivers of patients admitted to the neurosurgical care unit. They also reported that resilience in family members was significantly related to their psychological burden. These previous studies suggest that resilience reduces psychological symptoms such as those included in PICS-F. However, few studies have described the association between the characteristics of family members and patients and resilience in Japanese subjects.

The severe stress often reported by family members after a patient is admitted to the ICU has been shown to be a predictive factor for PTSD requiring medical intervention (Harvey & Bryant, 1999; Komachi & Kamibeppu, 2016). Continued stress on the family could lead to a deterioration in family functioning, which could also adversely affect the treatment of and support for the patient. Hence, high-risk family members should receive early screening for individual attributes and resilience of family members, which would help to determine those at a high risk for developing PICS-F and enable appropriate support to be provided. This screening should include evaluation of the characteristics of the family members of ICU patients. Therefore, this study investigated resilience in family members after a patient is admitted to

the ICU, with a particular focus on the PTSS component of PICS-F. The aims of this study were to determine the level of resilience in family members of patients admitted to the ICU, to verify the relationship between resilience and acute stress symptoms, and to examine the association between resilience and family and patient characteristics.

2. Material and methods

This cross-sectional study was conducted at two teaching and advanced treatment hospitals with medical/surgical (35 beds) and emergency ICUs (eight beds: four each in the coronary care unit and emergency ICU) in an urban area of Japan. Pertinent medical records were also collected.

The inclusion criteria for patients in the present study were as follows: 1) planned admission to the ICU following surgery; 2) unplanned immediate admission to the ICU following a flare-up of the patient's condition while in the general ward; and 3) unplanned admission to the ICU following treatment in the emergency room. The only exclusion criterion for patients was living alone. The inclusion criteria for family members were as follows: 1) a close relative to the patient, such as a spouse, child, parent, sibling, or other; 2) those providing consent to be surveyed by the ICU staff or a physician; 3) over 20 years of age; and 4) capable of communicating in Japanese. The only exclusion criterion for family members was being a caregiver for multiple family members.

Consent to generate a list of potential participants was obtained from physicians, managing nurses, and nursing staff assigned to patients admitted to the medical/surgical ICUs within the facilities. After explaining the aims and methods of our study, we requested a list of patients and family members who met the inclusion criteria. We then visited each family member in the medical/surgical ICU. To protect the anonymity of the participants and avoid placing pressure on them to complete the questionnaire in front of us, we asked that they return the questionnaire by mail within 24 h.

2.1. Ethical considerations

This study was approved by the relevant ethics committees. All participants received written and oral explanations of the aims of the study; they were also assured that their condition and treatment would be prioritized and that their anonymity would be preserved. They were also informed that their participation was voluntary and withdrawing from the study at any time without affecting their care. Written informed consent was obtained from all participants, but no consent was obtained from patients.

2.2. Data collection

Upon receiving the completed questionnaires, we collected the participants' basic demographic data. Data regarding the patients' demographics and clinical characteristics were obtained from their electronic medical records.

We developed a questionnaire composed of survey items in reference to previous studies on resilience and PTSD (Connor & Davidson, 2003; Lautrette et al., 2007; McAdam, Fontaine, White, Dracup, & Puntillo, 2012; Paparrigopoulos et al., 2006). The questionnaire items were designed to obtain the following information from the participants: demographics (age, sex, size of household, education level, marital status, relationship to patient, and household income); history of mental disorders; experiences regarding the loss of a family member; experiences regarding the loss of a close relative; occurrence of a stressful event within the previous month; and history of traumatic stress. For history of traumatic stress, we used an event checklist that had previously been published in the Clinician-Administered PTSD Scale as established in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) (Asukai, Hirohata, Kato, & Konishi, 2003). The following information was obtained from the patient's