Effectiveness of assertive case management on repeat self-harm in patients admitted for suicide attempt: Findings from ACTION-J study

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A B S T R A C T
Background: Self-harm is an important risk factor for subsequent suicide and repetition of self-harm, and a common cause of emergency department presentations. However, there still remains limited evidence on intervention in emergency department settings for individuals who self-harm.

Methods: This multicentre, randomised controlled trial was conducted at 17 general hospitals in Japan. In total, 914 adult patients admitted to emergency departments for a suicide attempt and had a DSM-IV-TR axis I disorder were randomly assigned to two groups, to receive either assertive case management (intervention) or enhanced usual care (control). Assertive case management was introduced by the case manager during emergency department admissions for suicide attempts, and continued after discharge. Interventions were provided until the end of the study period (for at least 18 months and up to 5 years).

Results: The number of overall self-harm episodes per person-year was significantly lower in the intervention group (adjusted incidence risk ratio (IRR) 0.88, 95% CI 0.80–0.96, p = 0.0031). Subgroup analysis showed a greater reduction of overall self-harm episodes among patients with no previous suicide attempt at baseline (adjusted IRR 0.73, 95% CI 0.53–0.98, p = 0.037).

Limitations: Patients younger than 20 years and patients who self-harmed but were not admitted to an emergency department were excluded.

Conclusions: The present study showed that assertive case management following emergency admission for a suicide attempt reduced the incident rate of repeat overall self-harm.

1. Introduction

Self-harm, defined as intentional self-poisoning or self-injury irrespective of motivation (National Institute for Clinical Excellence, 2011), is an increasingly prevalent public health concern worldwide. A history of self-harm is a strong risk factor for subsequent suicide (Carroll et al., 2014). Self-harm is often repeated (Carroll et al., 2014; Larkin et al., 2014), and individuals with multiple repetitions of self-harm are at higher risk of further self-harm (Perry et al., 2012) and subsequent suicide (Zahl and Hawton, 2004) than those with single self-harm episodes. In addition, self-harm is one of the most common reasons for emergency department presentations. Hospital attendance for self-harm has increased in the past twenty years in many countries, and repetition of self-harm has become a substantial burden on health and social care (Sinclair et al., 2011). In the United Kingdom, roughly 220,000 patients are admitted to the hospital for self-harm annually (Hawton et al., 2014). Findings from ACTION-J study...
2007). The average annual number of emergency department visits for attempted suicide and self-inflicted injury more than doubled in the United States, from 244,000 in 1993–1996 to 538,000 in 2005–2008 (Ting et al., 2012). The number of ambulance transports to the emergency department for self-harm cases in Japan also has doubled during past twenty years (White paper on Suicide Prevention in Japan, 2015).

There is accumulating evidence on psychosocial (Hawton et al., 2016) and pharmacological treatments (Hawton et al., 2015) for self-harm, and the emergency department is increasingly recognized as an important setting in the strategies focusing on individuals at high risk for self-harm. The transition from emergency department to outpatient services is crucial, because repetition of self-harm tends to occur quickly (Kapur, 2006), and people who self-harm have been found to be difficult to engage in treatment (Lizardi and Stanley, 2010). Therefore, effective intervention that is promptly introduced after emergency department presentation is needed to reduce it. However, there have been few investigations into intervention in emergency department settings for individuals who self-harm (Inagaki et al., 2015). A recent meta-analysis of interventions for self-harm (Hawton et al., 2016) showed that cognitive and dialectical behaviour therapies are effective, but prompt induction of these methods is difficult in the emergency department setting for patients in acute suicidal crisis. Although randomised controlled trials have been carried out on a variety of contact-type interventions for self-harm, the results remain controversial (Hawton et al., 2016; Inagaki et al., 2015). Some observational studies (Kapur et al., 2013a) showed that clinical management at emergency departments following self-harm was associated with a lower risk of repetition of self-harm. However, increased risk of suicide and repetition of self-harm often persist for years after the self-harm episode (Zahl and Hawton, 2004; Owens et al., 2002). Therefore, the importance of continued management after discharge should be also evaluated.

We recently examined the effects of assertive case management on repeat suicide attempts in the emergency department setting (ACTION-J study) (Kawanishi et al., 2014). This contact-type intervention was introduced by the case manager during emergency department admissions for suicide attempts, and consisted of assertive and continuous case management (for at least 18 months) based on psychiatric diagnoses, social risks, and patient demands. The intervention significantly reduced the number of individuals with first recurrent suicide attempt, for up to 6 months. In the first report from ACTION-J study, the primary outcome was first recurrent suicide attempt, which did not include self-harm without clear suicidal intent because it was assumed to be one of the most severe events second to suicide. However, there is evidence that suicidal intent is a continuum without obvious cut-offs (Kapur et al., 2013b), and even episodes of self-harm with no reported suicidal intent are associated with a higher risk of repeat self-harm and suicide compared with the general population (Cooper et al., 2005). Therefore, repetition of overall self-harm is also the key outcome by which to evaluate to what extent the intervention may reduce suicide risk among people with self-harm episodes, as well as the potential burden on the public health service. Assertive case management in ACTION-J approaches psychosocial risk factors that are common in both suicide attempt and non-suicidal self-harm episodes (Wichstrom, 2009); therefore, it is also expected that this intervention may generally reduce the number of repeat self-harm episodes.

Accordingly, for the present secondary outcome analysis, we chose overall self-harm irrespective of suicidal intent as the main outcome, and evaluate whether assertive case management intervention can reduce the number of repeat episodes of overall self-harm during the whole study period.

2. Methods

2.1. Study design and participants

Methods for the ACTION-J study have been previously reported in detail (Kawanishi et al., 2014; Hirayasu et al., 2009). ACTION-J was a multicentre, randomised controlled trial conducted in emergency and psychiatric departments at 17 general hospitals in Japan.

Participants were adult patients (aged 20 years and older) who were admitted to the emergency department of the participating hospital for a suicide attempt during the recruitment period, and had current diagnosis of a psychiatric disorder classified as DSM-IV-TR axis I. Suicidal intent at the index suicide attempt episode was confirmed by the Suicide Intent Scale (Beck et al., 1975). All participants provided written informed consent prior to enrolment.

The study protocol was approved by the Central Research Ethics Committee of the study sponsor (Japan Foundation for Neuroscience and Mental Health, Tokyo, Japan) and by the local ethics committees of all participating hospitals. This study is registered at ClinicalTrials.gov (NCT00736918) and UMIN-CTR (C000000444).

2.2. Interventions

Participants were randomly assigned (1:1) to either the intervention group (assertive case management) or the control group (enhanced usual care) by an Internet-based system operated by a central, independent data centre, using the minimisation method, with four factors: participating hospital, gender, age (< 40 v. ≥ 40 years), and history of previous suicide attempts before the present episode. Participants in both study groups were free to receive any type of treatment in the community.

Participants assigned to the intervention group were offered assertive and continuous case management provided by the case managers who worked on-site at the participating hospitals. Case managers were experts in mental health (social workers, clinical psychologists, nurses, or psychiatrists) who completed a training program for ACTION-J study. Case management consisted of assessment, planning, encouragement and coordination. The assessment included evaluation of treatment status and adherence, suicidal ideation, relationship with family and other caregivers, social problems that could affect mental and treatment status, and use of various social resources. Based on assessment results, the case managers encouraged participants to adhere to psychiatric treatment and other medical or social care, and if necessary, coordinated for use of these resources to meet individual demands.

The case managers performed the scheduled contact with participants at 1 week and 1, 2, 3, 6, 12 and 18 months after randomisation. With further consent, the case managers contacted the participants every 6 months until the end of the trial. These contacts for intervention were performed by face-to-face interviews at the participating hospital, or by telephone as the next best option. When the case managers could not contact participants, they approached family members who had also provided informed consent. Participants were also able to contact the case manager by telephone or face-to-face when they wished. The study group psychiatrists supervised the case management continuously.

The control group condition was enhanced usual care. Psychoeducation was performed during emergency department stay by the case manager or psychiatrist, and an information leaflet was provided at every outcome assessment visit.

2.3. Outcomes

The main outcome in this analysis was the number of repeat overall self-harm episodes per person-year. Other outcomes were the number of repeat suicide attempts and non-suicidal self-harm episodes per person-year. The definitions of suicide attempt, non-suicidal self-harm and overall self-harm used for outcome assessment of this study are as follows. Suicide attempt was defined as self-poisoning (overdose) or self-injury carried out with apparent suicidal intent. Non-suicidal self-harm was defined as self-poisoning or self-injury carried out when suicide...
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