

Should family members witness cardiopulmonary resuscitation?

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Clinical question

What is the effect of family presence during cardiopulmonary resuscitation on family members and the medical team?

Article chosen

Jabre P, Belpomme V, Azoulay E, et al. Family presence during cardiopulmonary resuscitation. *N Engl J Med* 2013;368:1008-18.

Objective

The authors sought to determine whether systematically offering relatives the option to be present during cardiopulmonary resuscitation increases the proportion of relatives with posttraumatic stress disorder–related symptoms after 90 days. Secondary outcomes included the presence of anxiety and depression symptoms in relatives, the effect of family presence on medical efforts at resuscitation, the well-being of the medical team, and the occurrence of medicolegal claims.

family presence may interfere with medical efforts and may result in medicolegal claims.⁴⁻⁶

Proponents for family presence during CPR argue that witnessing CPR may allow relatives to understand the resuscitation process and the chance to bid farewell to their loved one.^{7,8} The psychological benefits in relatives who have witnessed CPR have only been demonstrated in small surveys, observational studies,^{4,8-13} and a small randomized controlled trial (RCT).¹⁴ Despite the limited evidence, several major international guidelines support family presence during CPR.¹⁵⁻¹⁷

In the study reviewed, Jabre and colleagues sought to determine whether systematically offering relatives the option to be present during out-of-hospital CPR increases the proportion of PTSD-related symptoms, anxiety, and depression.¹⁸ They also aimed to clarify the effect of family presence on the medical team and resuscitation effort.

Keywords: cardiopulmonary resuscitation, family presence, posttraumatic stress disorder

BACKGROUND

Witnessing cardiopulmonary resuscitation (CPR) on a family member can be an incredibly stressful experience. Family members who are present during CPR are at high risk for posttraumatic stress disorder (PTSD), anxiety, and depression.¹ Surveys have shown that physicians are often reluctant to have relatives witness CPR.^{2,3} In addition to the possible psychological harm to family members, it has been argued that

STUDY DESIGN

This was a prospective, cluster-RCT conducted in 15 prehospital emergency medical service (EMS) units in France. Eight and seven participating units were randomized to the intervention and control groups, respectively. Adult family members of adult patients in cardiac arrest were enrolled. Only one first-degree relative per patient participated. Relatives were excluded if there were communication barriers or if CPR was not attempted. Family members in the intervention group were systematically asked by a

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member of the medical team whether they wished to witness the CPR and, if so, would be taken to the room, usually in the home, where the CPR was performed. Furthermore, an assigned physician used a communication guide to coach relatives throughout the resuscitation procedure and for the pronouncement of death. In contrast, family members in the control group were not routinely given the option to witness the CPR. Physician team leaders interacted with these relatives in a standard manner during CPR.

OUTCOME MEASURES

The primary outcome was the proportion of relatives experiencing PTSD-related symptoms at 90 days (score > 30 on the Impact of Event Scale [IES]).¹⁹ A trained psychologist, blinded to the study group assignments, conducted the IES by telephone. Secondary outcomes included the presence of anxiety or depression (score > 10 on the Hospital Anxiety and Depression Scale [HADS]),²⁰ the effect of family presence on medical efforts, the well-being of the medical team, and medicolegal claims. An intention-to-treat analysis was used for the primary outcome. Relatives who did not complete the IES questionnaire because of emotional distress were classified as having PTSD-related symptoms. Multiple imputation was used for missing data.

RESULTS

A total of 570 family members were enrolled, of whom 266 were randomized to the intervention (systematically asked if they wanted to be present) and 304 to the control (usual care). At 90 days, 95 family members (17%) did not complete the IES questionnaire. The baseline characteristics for patients and relatives, as well as characteristics of the resuscitation procedure and survival, did not differ significantly between the study groups.

The frequency of PTSD-related symptoms was significantly higher in the control group than in the intervention group (adjusted odds ratio 1.7; 95% confidence interval [CI] 1.2–2.5) and was significantly higher among family members who did not witness CPR than among those who did (adjusted odds ratio 1.6; 95% CI 1.1–2.5). Symptoms of anxiety were also more frequent in the control than in the intervention group ($n = 55$ of 239 [23%] v. $n = 34$ of 230

[15%]; $p < 0.001$). Twelve percent of relatives who did not witness CPR expressed regret at having been absent versus only 3% of relatives who did witness CPR who regretted being present. Less than 1% ($n = 4$ of 507) of relatives were aggressive or in conflict with the medical team, and there was no significant difference in stress levels in the medical team according to family presence. There were no medicolegal claims in either group.

STUDY CONCLUSION

The authors concluded that systematically offering family members the option to be present during CPR was associated with positive results on psychological variables and did not hinder medical efforts, increase stress in the medical team, or result in medicolegal claims.

COMMENTARY

As recently as 40 years ago, fathers were not welcome to accompany their spouse during childbirth. In the medical field, it was common belief that fathers would be traumatized by the sight of childbirth or would interfere with medical efforts.^{21–23} Now such notions seem preposterous. Are we making similar erroneous assumptions with the presence of family during CPR?

Jabre and colleagues sought to clarify whether relatives should be asked to be present during CPR. This study showed that the frequency of PTSD-related symptoms was significantly higher in the control group than in the intervention group and among family members who did not witness CPR than among those who did. We identified one small RCT¹⁴ and two prospective cohort studies^{4,11} that had previously examined psychological variables in relatives post-CPR. In the previous RCT ($N = 25$), relatives who did not witness CPR obtained a median IES score of 26.5 (interquartile range [IQR] 17.3–35.1) versus 23.5 (IQR 14.8–42.8) for relatives witnessing CPR.¹⁴ The authors were convinced of the better scores in the relatives witnessing CPR and ended the trial early. Their results never reached significance due to the small sample size.

Of the two prospective cohort studies identified, the authors of one study demonstrated no harmful effects on anxiety, satisfaction, and well-being in relatives who were present at the bedside during trauma resuscitation ($N = 50$).¹¹ However, the authors of another

prospective study ($N = 54$) suggested that PTSD-related symptoms may be higher in relatives witnessing CPR when calculating the mean difference in PTSD symptom scores (6.87; 95% CI 0.57–13.17).⁴ Several other small descriptive surveys have been previously performed and concluded that relatives who witnessed CPR experienced fewer symptoms of anxiety and depression.^{8–10,12,13}

Several major international guidelines, including those of the American Heart Association (AHA), recommend inviting family members to witness CPR.^{15–17} As few as 8% of Canadian hospitals have guidelines for the presence of family during resuscitation.²⁴ Much of the literature on family-witnessed CPR has focused on the attitudes and beliefs of family members and health care workers.^{7,25–28} In these surveys, the majority of family members preferred to be present during CPR. Similarly, in the study by Jabre and colleagues, of patients given the option to witness CPR, 79% chose to be present. However, a review of health care worker surveys demonstrated that a large proportion of physicians are reluctant to have family presence.²⁸ The most notable reasons for this reluctance are the beliefs that witnessing CPR would negatively impact the psychological variables in relatives, lead to family member interference with the medical effort, and increase medicolegal issues.

Jabre and colleagues attempted to address these concerns in their secondary analyses. Of patients who were present during CPR, few were aggressive or in conflict with the medical team. The median stress score of emergency physicians did not differ according to family presence. When comparing family presence versus family absence during CPR, there were no differences in the median defibrillation attempts (3; [IQR 1–5] v. 4; [IQR 1–6]; $p = 0.56$), epinephrine administration (7; [IQR 5–10] v. 7; [IQR 5–10]; $p = 0.86$), and duration of resuscitation (30; [IQR 23–40] v. 30; [IQR 20–40]; $p = 0.58$).

This study provided strong evidence supporting family-witnessed CPR. Although it challenged the belief elicited from physician surveys that physicians tend to be uncomfortable with family-witnessed CPR,²³ its results were in concordance with most previous small prospective and descriptive studies examining PTSD, depression, and resuscitation outcomes.^{8–12,14} There were several strengths to this study, including its randomized controlled design and large sample size ($N = 570$). There were few exclusion

criteria limiting selection bias, and baseline characteristics were similar between the two groups. Outcome assessment was appropriately implemented by a blinded psychologist, and an intention-to-treat analysis was conducted.

There are several elements to consider when interpreting the results of this study. First, subjects were randomized according to the choice to witness CPR. The intervention consisted of systematically asking relatives if they wanted to be present, and the control consisted of usual care. As a result, not all subjects were present during CPR in the intervention group or absent during CPR in the control group. There was significant overlap between the groups, with 79% and 43% of relatives witnessing CPR in the intervention and control groups, respectively. Secondary analyses comparing relatives who witnessed CPR to relatives who did not witness CPR should be interpreted with caution as subjects were not randomized in this way.

Second, there were a number of elements that may have limited the internal validity of this study. There may have been differences in the care provided to the intervention and control groups. Relatives in the intervention group were accompanied by an investigator who explained the resuscitative process. The lead physician met with the family and used a communication guide to help with the pronouncement of death. The differences in PTSD-related symptoms may not have been solely due to witnessing CPR but rather how the relatives were treated by the physician involved. There was also a risk of attrition bias because 17% of relatives (20.4% v. 12.4% in the control and intervention groups, respectively) did not complete the outcome assessment at 90 days. The authors employed an intention-to-treat analysis and attempted to limit this bias by using multiple imputation.

Third, the external validity of this study is limited. The study was conducted for out-of-hospital cardiac arrests, usually in the home of the patient. The generalizability of the results to in-hospital arrests may be limited as witnessing CPR in the hospital may be more traumatic for family members, or, conversely, the home may be a constant reminder of a traumatic event. Furthermore, the EMS system in France differs from the North American system. French ambulances actually resemble mobile intensive care units and are staffed with physicians. From a medicolegal standpoint, medicolegal claims are less frequent in France than in North America.²⁹

Fourth, this study may have benefitted from subgroup analyses to determine the psychological impact of family-witnessed CPR in different circumstances for cardiac arrest, including trauma, suicide, and expected death. PTSD-related symptoms may be higher in relatives present during a trauma, for which CPR conditions may be less than ideal. Stress levels for health care workers with varying levels of experience may also be different. A subset of patients experienced return of spontaneous circulation (30.0%) and survival at 28 days (3.9%). Subgroup analyses may have helped determine whether PTSD-related symptoms differed for the relatives of these patients.

Finally, the follow-up time for the primary outcome of this study was 90 days. The development of PTSD-related symptoms, anxiety, or depression following a loss may occur several months later. Although the process of bereavement varies between individuals, the stages of bereavement from death of a loved one usually last at least 6 months.³⁰ PTSD-related symptoms may be delayed up to 6 months after a traumatic event.³¹ The follow-up period may have been too short to detect all cases of PTSD-related symptoms after CPR.

CONCLUSION

This RCT provides valuable information supporting the AHA recommendation to offer family members the option to be present during CPR. Systematically offering family members the option to be present during CPR was associated with fewer PTSD-related symptoms and was not harmful for any of the stakeholders. Previous surveys of physicians have demonstrated a reluctance to provide family members with the option of being present during CPR. Future studies with longer follow-up periods, performed in other countries, and conducted within the hospital may be needed to minimize this reluctance. Perhaps in the future, family members will be welcomed to the resuscitation bay as fathers are now welcomed in the delivery room.

Competing interests: None declared.

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