

Editorial RE: “Side errors in neurosurgery and human factors training”

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Surgical safety and quality requires identification and avoidance of human errors to the utmost extent. Human errors can result from insufficient knowledge and training, but typically routine procedures that are simple to perform lead to error when simple safety measures are omitted. One typical kind of avoidable error is the “side error”, which can result from neglect of actually checking the right side before starting surgery [2, 3]. In aviation, checklists were introduced to diminish error from omission of routine checks; subsequently avoidable errors decreased dramatically.

Checklists are widely used in medicine and surgery to avoid error from oversight, arrogance, or neglect. Recently, the WHO-checklist, a list that contains other items than right-left confirmation, was introduced successfully [1]. However, other more or less explicit checklists have been used for a long time to confirm the side of the lesion and that the surgical site before making an incision [2]. We and others have used checklists or checklist-like routines where the responsible surgeon and nurse independently confirm and check the side before the incision.

Regardless of methods, procedures to guarantee safety are a primary responsibility of the departmental medical management. There can be many ways to minimize avoidable error rates, and different managers choose different methods. Most important is the functionality: avoidance of “unforced errors”. In this context, Patrick Mitchell and Trevor Dale report first the seemingly successful adoption of a checking system [3]: “the knife check”, which they now have adopted as a part of the WHO surgical checklist in their hospital. We have similar experiences with a knife check since the 1990s, which has now become part of the WHO checklist. We do not have

prospective records or knowledge of side confusion over the entire period, but know that there have been no side-mistakes during the last 6 years. It is well accepted that a pre-surgical explicit or implicit checklist and time-out are effective means of decreasing error that is caused by omission of necessary but simple routine procedures [1, 2].

It is difficult to quantify untoward events retrospectively and hence impossible to evaluate the impact of the measures taken by Drs. Mitchell and Dale [3]. They chose to report time between events of right-left mistakes. The time increased from 2 to 18 months following adoption of the knife check; a figure that agrees with a positive effect to decrease errors. However, another incidence was noted after 18 months: a patient was operated on the wrong side. This time, a root-cause analysis yielded a highly unexpected and almost improbable result: of the two most involved persons for the side check, the responsible surgeon and the nurse, both suffered from right-left apraxia. This time, the manager chose to contact a commercial company, “Atrainability”, to provide training in “human factors”. All 125 employees of the neurosurgical theatres underwent a 1-day training-program during working hours. Subsequently, personnel from Atrainability supervised theatre work for 3 months. The contents of the course and nature of advice were not disclosed in the manuscript. However, further right-left mistakes did not occur, although one “near miss” was reported. The authors interpret the outcome as a favorable intervention with the training program.

It is a primary responsibility of the medical management to forge policies and a culture that minimize avoidable mistakes and maximize quality of treatment. The present intervention may well have been successful, although the data are insufficient to support a causal link. However, the root cause analysis could be utilized. In the present circumstances, the side confusion was caused by a very rare occasion of right-left apraxia in two people. The unfortunate outcome of such an

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improbable coincidence could be prevented by a revision of the checklist. A small addendum: “In the event of right-left apraxia, two other surgeons/nurses should be consulted for the side-check” may be sufficient. Another sentence in the checklist costs less than a non-specific training and tutoring program for 125 employees over 3 months for “human factors training” at a cost of close to 450,000 lb (direct cost and loss of charges for 4 days of closed theatres). I believe such a specific measure to be more effective for elimination of this specific mistake, than a non-specific training program. After all, checklists seem to work well [1].

The setting is, however, complex. It is probable that the major project contributed to increased patient safety by increasing awareness in indirect ways: by team-building and creating a shared sense of duty and responsibility of patient outcomes; immaterial factors that are part of local culture and form integral means of medical leadership. I would welcome

if the authors described their interventions and attempted to study the effects further in future manuscripts.

Conflicts of interest None.

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