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The impact of delirium screening on admission to general hospital using stanford proxy test for delirium sptd1® , a quality improvement project

Abstract

In this Quality Improvement Project QIP, we hypothesized that implementing screening tool for detecting delirium at admission to general hospital will term a higher yield; thus early recognition and diagnosis will eventually lead to an early intervention and prevention.

Method: We set to screen every patient admitted to a community general hospital. Exclusion criteria: Any congenital neurological malformation, a history of pervasive developmental disorder, or documented brain injury. For this purpose we used The Stanford Proxy Test for Delirium (S-PTD) which is the first diagnostic test for delirium that combines criteria from the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and the International Classification of Diseases, 10th revision (ICD-10) 2015. This test was generated in Stanford University 2015 by Jose R. Maldonado, MD et al. and discussed in the APM conference in November 2015, in New Orleans then in the APA meeting, 2016 Atlanta, USA. The test assesses the patient's twelve different parameters. When set the positive cutoff score at 4 or more, the S-PTD had a sensitivity of 79%, specificity of 91%, positive predictive value of 70%, and negative predictive value of 94%. One of the big advantages of this tool is required 2minutes to complete. Also, the nursing staff can easily administer it to their patient during their shift, which means measuring patients cognitive function in different times through the day.[1]

Results: 19.55% of all admission suffered from delirium on admission, while the admitting officer clinically recognized 5.3% of all admission.

Conclusion: using the SPTD[1] on admission yield 400% more positive result. It's highly recommended to use screening tool as part of admission process.

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Introduction

Delirium, a term used to describe an acute confusional state, remains a major cause of morbidity and mortality, costing over $150billion dollars yearly in health care costs in the United States alone.[2,3] Despite increased efforts targeting awareness of this condition, delirium often goes unrecognized in the face of evidence that it is usually the cognitive and behavior manifestation of serious underlying medical or neurologic illness.[4,5] Delirium is among the most common mental disorders encountered in patients with medical condition, particularly among old age group[6] Nearly 30 percent of older medical patients experience delirium at some time during hospitalization.[7] Among older surgical patients, the risk for delirium varies from 10 to greater than 50 percent.[8,9] Predisposing factors for delirium include being male, having a history of fall, and dehydration. Other factors are age, cognitive status, functional status, sensory impairment, malnutrition, drug/alcohol abuse, and some coexisting medical conditions.[2] Drug use, primary neurologic diseases, undercurrent illness, surgery, and/or environmental aspects can all be precipitating factors for delirium.[10]

Quality improvement project

We set out to measure randomly the rate of delirious patient in general medical/surgical units of the community general adult hospital in Doha, Qatar. We screened every patients admitted to the general Medical/Surgical floor regardless of sex, age, nationality or diagnosis of the admission using S-PTD. Demographic, pathological and psychiatric history of those patients was recorded as it was documented in a routine history and physical exam in a time frame of three months included all the three shifts.

Sample size

Aiming n=136, Confidence level 95%, MOE 5%, probability 10%.

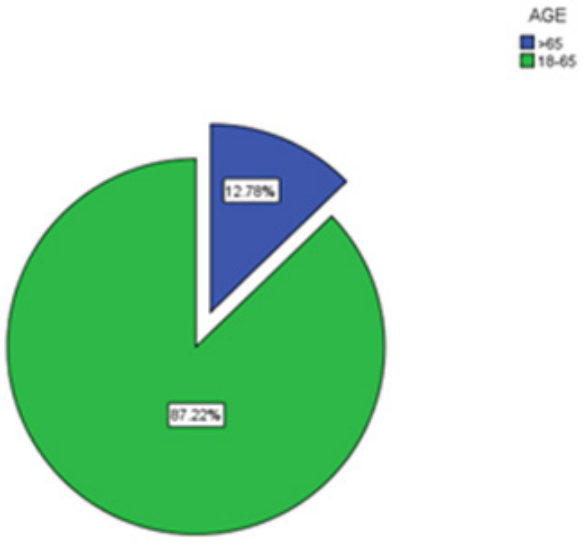

Figure 1 Disturbance of all participants based on Age.

Results

The mean age of 133 randomly selected participants was 40.58 year with 16.1years SD. The percentage of old patients was 12.78%

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(Figure 1). Male/female ratio was 2:1, (Figure 2), which is slightly different than the distribution in population 3.39:1.[11] The admitting officer documented 7 of 133 patients suffering from delirium, based on clinical presentation without using screening tool, which translated to 5.3 %. Figure3, the mean age of delirious patients was 52.57year with 19.6years SD. Since the objectives of this was to determine the actual prevalence rate of deliriumin our hospital and compare it with bench mark of same pathology in other hospital around the world by using S-PTD. We need to take in consideration the demographic distribution peculiarity in Qatar, where 60 % of the population is between age 18-35 and the male/female ratio is 3:1.[11,12] This skewing of distribution is primarily due the huge number of expects young male working in construction and oil/gas industry in Qatar. A meta-analysis of 42 studies reported delirium to be prevalent on admission in 10–31% of medical inpatients.[13] The result on admission, using S-PTD, the prevalence of delirium is 19.55 % which is in line with, (Figure 4), 57% of them are male (Figure 5), which is in line with the meta-analysis findings.

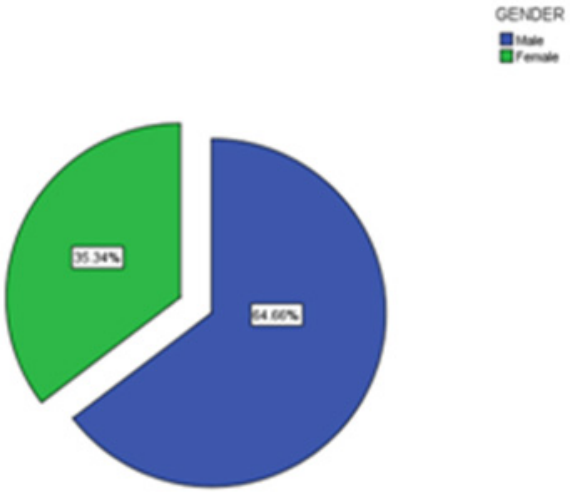

Figure 2 Disturbance of all participants based on Gender.

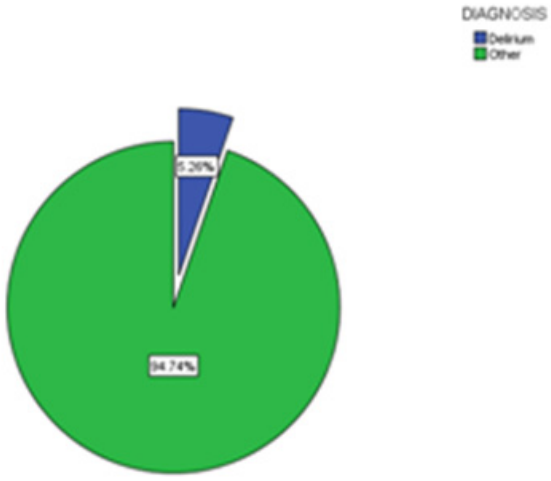

Figure 3 Disturbance of all participants based on Delirious or not, based on admitting officer in the floor.

Discussion

A simple tool like the S-PTD that is based on educated medical observation, has demonstrated to be a very useful, easy to perform, with no additional patient burden, and no additional major training for the staff, it can contribute to effectively recognizing and diagnose delirium in patients admitted to medical/surgical unit, Thus, make it easier to initiate treatment in earlier stage, and prevent the known mortality and morbidities associated with delirium.[14] Without using a screening tool, our finding suggests that 75% of delirious patient would be missed on admission period. Keeping in mind the high mortality rate of delirium, many delirious patients were missed without using such screening tool, despite all evidence-based medicine and guidelines that support using screening tool for such diseases.[15,16] So, it is important to early detect delirium among the patients presenting to the floor, to ensure not misuse the hospital resources, such as unnecessary consultation and investigations. The tool itself is easy to use, doesn't require special training, and need in average 2-4minutes to complete. It can be used by psychiatrists and other non-psychiatric medical staff. Due to the population age skewing in Qatar,[12] the prevalence of delirium in Qatar is more common in young patients rather than elderly as we found 15.3% aged above 65 (Figure 6), which is not typically found in literature.[17]

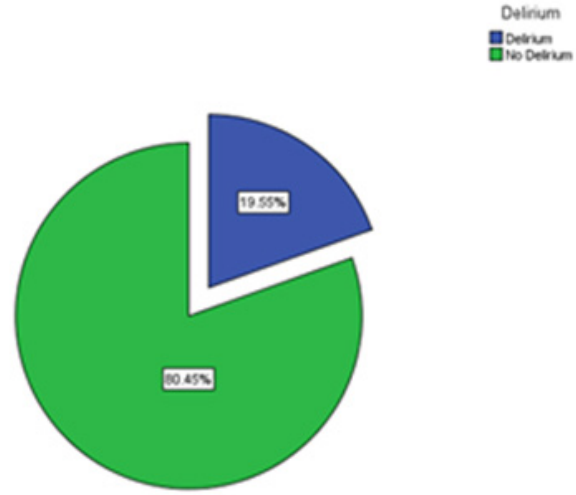

Figure 4 Disturbance of all participants based on Delirious or not, based on S-PTD.

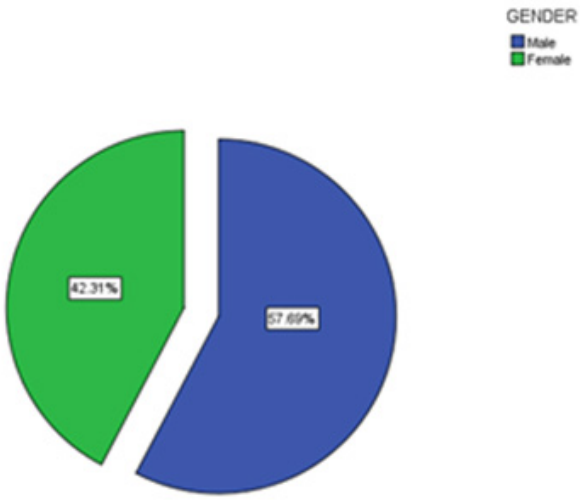

Figure 5 Disturbance of delirious patient based on S-PTD, according to gender.

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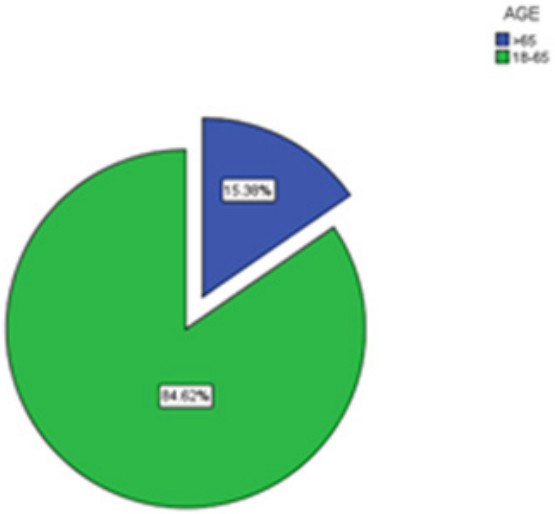
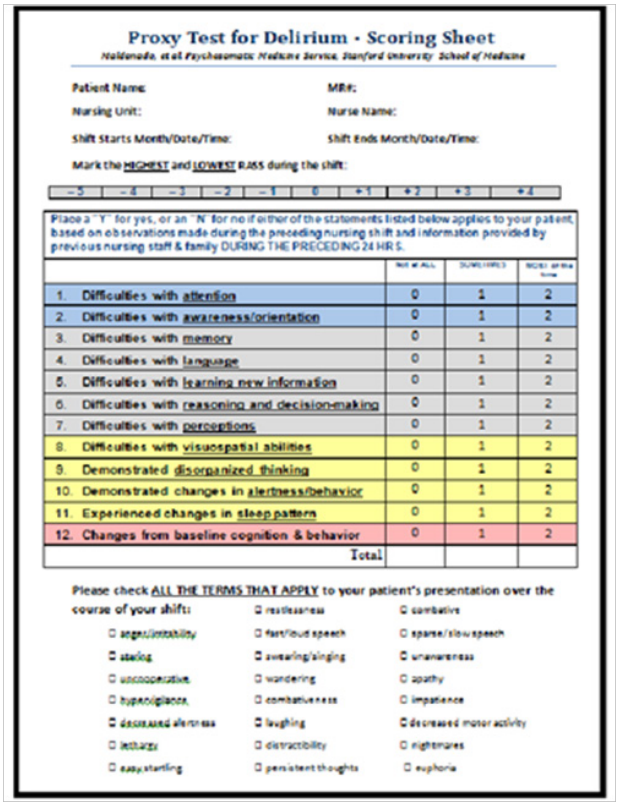


Figure 6 Disturbance of delirious patient based on S-PTD, according to Age.



Proxy Test for Delirium - Scoring Sheet

Maldonado, et al Psychosomatic Medicine Service, Stanford University School of Medicine

Patient Name: MR#:

Nursing Unit: Nurse Name:

Shift Starts Month/Date/Time: Shift Ends Month/Date/Time:

Mark the HIGHEST and LOWEST RASS during the shift:

-5	-4	-3	-2	-1	0	+1	+2	+3	+4

Place a "Y" for yes, or an "N" for no if either of the statements listed below applies to your patient, based on observations made during the preceding nursing shift and information provided by previous nursing staff & family DURING THE PRECEDING 24 HRS.

	Not at ALL	SOMETIMES	MOST of the time
1. Difficulties with attention	0	1	2
2. Difficulties with awareness/orientation	0	1	2
3. Difficulties with memory	0	1	2
4. Difficulties with language	0	1	2
5. Difficulties with learning new information	0	1	2
6. Difficulties with reasoning and decision-making	0	1	2
7. Difficulties with perceptions	0	1	2
8. Difficulties with visuospatial abilities	0	1	2
9. Demonstrated disorganized thinking	0	1	2
10. Demonstrated changes in alertness/behavior	0	1	2
11. Experienced changes in sleep pattern	0	1	2
12. Changes from baseline cognition & behavior	0	1	2
Total			

Please check ALL THE TERMS THAT APPLY to your patient's presentation over the course of your shift:

☐ agen/irritability	☐ restlessness	☐ combative
☐ staring	☐ fast/loud speech	☐ sparse/slow speech
☐ uncooperative	☐ swearing/singing	☐ unawareness
☐ hypervigilance	☐ wandering	☐ apathy
☐ decreased alertness	☐ combativeness	☐ impatience
☐ lethargy	☐ laughing	☐ decreased motor activity
☐ easy startling	☐ distractibility	☐ nightmares
	☐ persistent thoughts	☐ euphoria

Figure 7 Stanford Proxy Test for Delirium S-PTD.
Maldonado, et al 2015, submitted, under review

Recommendation

Because of the clinical importance of the delirium, its high co morbidity and mortality consequences, and given the ease of SPTD tool administration, especially that all but one item depend totally on clinical observation and doesn't require any active participation from the patient (Figure 7). Thus, the testing burden is almost milled yet the yield is very beneficial. We highly recommend incorporating the S-PTD screening as part of the admission routine history and physical and making it a standard practice to screen all admissions to medical/surgical unit. Evidence-based medicine and guidelines have supportive using a delirium screening tool.[15, 16] With that purpose, we do recommend to incorporate the SPTD with in the initial history and physical evaluation on admission period. The tool itself is easy to use, doesn't require special training, and doesn't increase the burden on medical/nursing staff or the patients. Furthermore, because of the nature of delirium, that is waxing and waning, we extend our recommendation to apply the SPTD screening with documentations at least once a shift, especially or more in population at risk. After the implementation of the tool, we recommend to perform and audit measuring length of stay for the era of prescreening compare to post screening.

Acknowledgments

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Conflicts of interest

Author declares there are no conflicts of interest.

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