Urinary tract infection

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Catheter-associated urinary tract infections (UTIs) are increasingly recognized as a significant source of avoidable iatrogenic morbidity. A PubMed search for “catheter associated urinary tract infection” will reveal 1190 articles published since 1961, 716 of which have been published since January 2001. By definition, the most important factor for catheter-associated UTI is the presence of the catheter itself. With the increasing scrutiny by regulatory agencies, third-party payers, and the federal and state governments in defining quality outcomes in medical care and reducing medical errors and complications, catheter-associated UTIs would appear to be a “low-hanging fruit” for all to focus on. There is also increasing recognition that strict adherence by all members of a medical team to protocols and checklists in the performance of simple procedures may be associated with better outcomes.

In this context, Titsworth et al.3 describe their evidence-based quality improvement initiative for addressing catheter-associated UTI in their neurological intensive care unit (neuro ICU) patients. After two 1-month observation periods, they performed a 30-month intervention on all neuro ICU patients consisting of avoidance of urinary catheter placement, maintenance of sterility, product standardization, and early removal of urinary catheters. Over the study period, the rate of catheter-associated UTI dropped from 13.3 to 4 infections per 1000 catheter days. The utilization rate of urinary catheters also decreased from 100% to 73%. Titsworth et al. were able to show a linear relationship between catheter utilization and catheter-associated UTI rate. This appears to be clear evidence of how this particular initiative led to an objective improvement in the rate of a complication that increases costs and morbidity, and would argue that protocols and guidelines do help in this regard.

Curiously, the rate of catheter-associated UTI during the observation periods appears to be higher than would be expected based on other published reports of catheter-associated UTI in the ICU setting. Internationally, the rate of catheter-associated UTI in ICUs has been reported at 6.3 infections per 1000 catheter days;2 less than half the initial rate reported by Titsworth et al. In the US, although the rate of catheter-associated UTI in neuro ICU patients (6.8 infections per 1000 catheter days) is recognized as higher than in other medical/surgical ICUs (3.1 infections per 1000 catheter days), the rate of 13.3 infections per 1000 catheter days appears to be an outlier.

It may have been helpful if Titsworth et al. had included some information on the diagnoses of patients in their neuro ICU during the study, as this may have been a heterogeneous patient population that could have explained such a high initial rate.

Nevertheless, this study serves as a paradigm for evidence-based quality improvement in neurosurgical patient populations. As recognized by the authors, to date there has been a shortage of such efforts in neurosurgical patients. It is imperative for neurosurgeons to be at the forefront in the guidance of such efforts through the collection of evidence or else solutions will be dictated to us by others based on their own “collected” evidence. This study inspires us to look at our own catheter-associated UTI rate and to be mindful of the presence of a urinary catheter in our patients on a daily basis.

Disclosure

The authors report no conflict of interest.

References


Response

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We would like to thank Drs. Powers and Chiocca for their thoughtful comments regarding our paper. We agree wholeheartedly that the infection rate of 13.3 catheter-associated UTIs per 1000 catheter days was an outlier. In an effort to highlight this fact, we cited the National Healthcare Safety Network report in the article. Unfortunately, we maintained this consistently high infection rate throughout an extended preintervention period. It was this unacceptably high rate that drove us to perform the quality initiative. Fortunately, because of the success of this project, much enthusiasm for similar projects has been garnered in our neuro ICU and has resulted in an overall culture change. This change is best exemplified by several other quality projects that are ongoing and utilize the same evidence-based quality improvement structure as that outlined in this paper.

Medicine has entered a new era with entities such as the Hospital Consumer Assessment of Healthcare Providers and Systems (www.hcahpsonline.org) and the University Health System Consortium (www.uhc.edu). Healthcare institutions will now be faced with maintaining performance standards at or above peer institutions while simultaneously improving quality from within. The latter of these goals requires identifying shortcomings within our own performance. Baron William Thomson Kelvin, a 19th century mathematician, physicist, and engineer, stated, “If you cannot measure it, you cannot improve it.” The ability to measure health care outcomes is no longer in question. What remains to be seen is whether we will continue to accurately report even those measurements that reflect our weaknesses.

Reference


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