before introduction of factor VII, or who received no factor VII because of physician preference, served as controls. Factor VII was used a second-line therapy after initial attempts at reversal with FFP had failed.

RESULTS: There were no significant differences in baseline variables between the groups (P > 0.5): FVII versus controls: age 60 versus 57 years, 55% versus 58% male, 14 of 29 (48%) versus 9 of 24 (30%) with warfarin-induced coagulopathy, 20 of 29 (69%) versus 17 of 24 (71%) presented with intracranial hemorrhage. The mean international normalized ratio (INR) upon admission was 2.33 versus 2.15 (P > 0.5). After initial FFP, before administration of factor VII, INR decreased to 1.67 ± 0.18 (mean ± standard error of the mean) in the FVII group and 1.85 ± 0.22 in controls. INR tended to rise again rapidly after the initial infusion of FFP in both groups and in the FVII group it was back to a mean of 2.20 before factor VII administration. In this group, 1.2 mg of factor VII resulted in immediate normalization of INR to a mean of 1.12 (P < 0.05). Three of 29 (10%) in the FVII group and 4 of 24 (17%) of the control group died. One patient in the control group developed deep vein thrombosis; there were no thrombotic complications in the FVII group.

CONCLUSION: Factor VII seems to be safe and highly effective when emergency reversal of coagulopathy is desired in neurosurgical patients. We speculate that the use of factor VII as first-line therapy may expedite normalization of INR and result in decreased use of FFP.

723 Antimicrobial-impregnated External Ventricular Catheters: Does the Very Low Infection Rate Observed in Clinical Trials Apply to Daily Clinical Practice?
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INTRODUCTION: A recent multicenter, randomized, prospective study using antimicrobial-impregnated ventricular catheters (AIVCs) has demonstrated a dramatic reduction in the incidence of catheter-related infections. By necessity, such trials are subject to rigorously controlled clinical trials do not automatically apply to daily clinical practice. The aim of the present study was to establish whether the very low incidence of ventriculitis with antimicrobial-impregnated catheters reported in these trials is also observed in routine clinical practice.

METHODS: Data on 139 consecutive patients admitted to a neurocritical intensive care unit who underwent placement of 154 antibiotic-impregnated ventricular catheters were collected prospectively. All patients included in the data analysis had an AIVC for at least 48 hours, and cultures as well as cell counts were obtained from the cerebrospinal fluid at various intervals after placement of the AIVC.

RESULTS: One hundred thirteen catheters in 100 patients met criteria for inclusion in the analysis. There were four positive cultures. In three patients, the culture result was thought to be a contaminant (because it was not corroborated by clinical findings or cell count, or because of the characteristics of the culture). Only one gram-negative infection was considered to be clinically significant (0.88% of catheters, 1.00% of patients) and confirmed on clinical and other laboratory grounds.

CONCLUSION: The very low infection rate with currently available AIVCs observed in rigorously controlled clinical trials translates to routine clinical practice. AIVCs should be strongly considered whenever external ventricular drainage is indicated.

724 Injury Patterns from Operation Iraqi Freedom Seen at Walter Reed Army Medical Center and National Naval Medical Center
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INTRODUCTION: Operation Iraqi Freedom (OIF) started on March 20, 2003. Major offensive campaigns ended May 1, 2003. Since that time, troops have remained in Iraq serving in a wide variety of roles. The purpose of this paper is to present the experience at Walter Reed Army Medical Center (WRAMC) and National Naval Medical Center-Bethesda (NNMC) with patients who were medically evacuated from the theater for neurosurgical issues over the first year of combat.

METHODS: A retrospective chart review was performed on all medical evacuations from OIF to WRAMC and NNMC from March 20, 2003, through March 20, 2004. Patients who were medically evacuated for neurosurgical evaluation or consultation were included.

RESULTS: There were 2594 patients evacuated to WRAMC/NNMC during this time period. Two thousand twenty-three (78%) were from OIF. Neurosurgery was either the primary or consulting service for 281 (14%) of these patients. There were 102 cranial injuries (36%) and 150 (53%) spine or spinal cord disorders. The remaining evacuations were composed of a variety of disorders such as peripheral nerve injuries and newly discovered tumors. One hundred four (37%) were battle injuries and 177 (63%) were nonbattle injuries or disease. Of the cranial cases, 54 (53%) were penetrating head injuries, and 48 (47%) were closed-head injuries. Of the spine cases, 134 (89%) were low back pain, neck pain, or radiculopathies. Sixteen of these cases (11%) were penetrating spine/spinal cord injuries or fractures.

CONCLUSION: OIF and continued operations in Iraq represent the longest continuous large-scale active military conflict since Vietnam. By reviewing the medical evacuations from the theater, it is possible to determine the role for a military neurosurgeon in times of war. It also provides evidence for further research into body armor and helmets that eliminate vulnerable areas, such as the neck and face, and are practical for use in austere environments.

725 USNS Comfort: Lessons Learned from Operation Iraqi Freedom
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INTRODUCTION: The USNS Comfort, a 1000-bed floating hospital, was deployed to the Persian Gulf in support of coalition forces participating in Operation Iraqi Freedom. The ship is equipped with computed tomography, angiography, 11 operating rooms, and an 80-bed intensive care unit. Surgical staff included most major specialties. The ship was positioned several kilometers off the coasts of Iran, Iraq, and Kuwait. Patients were transported to the ship by helicopter. Despite a well-trained staff and full tertiary capabilities, issues related to caring for battlefield wounded on foreign soil could not be completely prepared for. We present our experience with the neurosurgical population during this conflict.

METHODS: Seven hundred fifty-six operations were performed in 52 days. Of these, 55% were completed on Iraqi citizens. Ten craniotomies were performed on 7 patients. Six of these patients were Iraqi citizens. One had had two prior craniotomies at other facilities, and all were days to weeks from injury. Multiple transports and Geneva convention protocols meant that little or no medical information was available at the time of admission.