Body mass index affects time to definitive closure after damage control surgery

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Background: A growing body of literature demonstrates that irrespective of the mechanism of injury, obesity is associated with significantly worse morbidity and mortality after trauma. Among patients requiring damage control laparotomy (DCL), clinical experience suggests that obesity affects time to definitive closure though this association has never been demonstrated quantitatively.
Methods: All patients at an academic Level I trauma center requiring a DCL between January 2002 and December 2006 (N = 148) were included. Information pertaining to demographic, injury, and clinical characteristics was abstracted from patient medical records. The risk of specific complications including pneumonia, renal failure, and sepsis was compared between normal and overweight/obese patients, as measured by body mass index (BMI). The lengths of intensive care unit (ICU) stay and mechanical ventilation as well as time to abdominal closure were also compared.
Results: The risk of pneumonia, sepsis, and renal failure was 2.05-times, 1.77-times, and 2.84-times higher among overweight patients compared with patients with a normal BMI. The risk of pneumonia, sepsis, and renal failure was 2.01-times, 4.24-times, and 1.85-times higher among obese patients compared with those with a normal BMI. Obese patients also had a significantly longer ICU length of stay (28.7 days vs. 15.1 days; $p < 0.0001$), longer hospitalization (39.3 days vs. 27.0 days; $p = 0.008$), and time to definitive closure (8.4 days vs. 3.9 days; $p = 0.03$) compared with patients with a normal BMI.
Conclusions: Among patients requiring DCL, those who are overweight or obese have a prolonged time to definitive closure. These patients also experience a significantly longer ICU course and a higher risk of pneumonia.

Editorial Comment

Obesity has reached epidemic proportions in the US and across the globe. Surgical management of the morbidly obese is difficult and time consuming, and prone to more complications and prolonged hospitalizations. In the trauma literature, obesity is an independent factor in a negative impact as to overall morbidity and mortality.

The concept of damage control is rarely discussed in the urologic literature but is an important management method that all Urologists should be familiar with. Urology and damage control were first championed by Michael Coburn of Ben Taub Hospital, a major trauma center in Houston, Texas. The concept entails that patients that are critically injured are best managed by temporizing surgical measures to quickly stop bleeding, and fecal and urinary leakage, avoid definitive reconstruction, and plan on a later staged operation, after the patient has been resuscitated in the Intensive Care Unit. The concept is that the fatal triad of a cold, coagulopathic and acidotic patient has a high degree of dying – and that such patients need to have surgery aborted and the adverse parameters corrected. To minimize the time on the operating room table a quick abdominal closure is needed. During the drug wars in the early 1990s in Bogotá, Colombia, the surgery services were overwhelmed and decided to do damage control surgeries and not to close the fascia, but instead sew an opened 3-liter saline bag to the skin edges. By not closing the fascia avoids intra abdominal compartment syndrome and allows the bowel edema time to resolve and allow for delayed closure. The use of the "Bogotá bag" was a major advance in the management of the critically ill patient. The "Bogotá bag" has been modified in to the current use of the "VAC PAC". This entails taking the fluoroscopy cover plastic sheet and fenestrating it with multiple small slits. The sheet in then placed under the fascia. Two lap pads are placed on top of the plastic sheet and 2 JP drains placed on top of the lap pads, and then covered with gauze. At the skin level a large adhesive VY drape is stuck to the skin and the JPs placed to wall suction. Making the "VAC PAC" takes less then 5 minutes and helps

control peritoneal fluid and bowel edema. In the critically injured Urology patients, the "VAC PAC" should be more liberally used. The use of damage control in urology mainly applies to the injured ureter, where the ureter can either be ligated, or a pediatric feeding tube or ureteral stent placed up the cut ureteral edge and the stent pulled quickly through the skin. Here, definitive measures such as a Psoas hitch or Boari flap are deferred to another day when the patient is stable. Attempting definitive repairs in the critically injured patient is unwise and risks death.

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PATHOLOGY

Does perineural invasion on prostate biopsy predict adverse prostatectomy outcomes?

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Objective: To determine the relationship between perineural invasion (PNI) on prostate biopsy and radical prostatectomy (RP) outcomes in a contemporary RP series, as there is conflicting evidence on the prognostic significance of PNI in prostate needle biopsy specimens.
Patients and Methods: From 2002 to 2007, 1256 men had RP by one surgeon. Multivariable logistic regression and Cox proportional hazards models were used to examine the relationship of PNI with pathological tumour features and biochemical progression, respectively, after adjusting for prostate-specific antigen level, clinical stage and biopsy Gleason score. Additional Cox models were used to examine the relationship between nerve-sparing and biochemical progression among men with PNI.
Results: PNI was found in 188 (15%) patients, and was significantly associated with aggressive pathology and biochemical progression. On multivariate analysis, PNI was significantly associated with extraprostatic extension and seminal vesicle invasion ($P < 0.001$). Biochemical progression occurred in 10.5% of patients with PNI, vs 3.5% of those without PNI (unadjusted hazard ratio 3.12, 95% confidence interval 1.77-5.52, $P < 0.001$). However, PNI was not a significant independent predictor of biochemical progression on multivariate analysis. Finally, nerve-sparing did not adversely affect biochemical progression even among men with PNI.
Conclusion: PNI is an independent risk factor for aggressive pathology features and a non-independent risk factor for biochemical progression after RP. However, bilateral nerve-sparing surgery did not compromise the oncological outcomes for patients with PNI on biopsy.

Editorial Comment

The significance of perineural invasion by carcinoma in needle prostatic biopsies is controversial (1,2). Presence of perineural invasion in needle prostatic biopsies may influence the indication of resection of neurovascular bundle. Loeb's et al. study showed that perineural invasion on prostate biopsy was not a significant independent predictor of biochemical progression on multivariate analysis and nerve-sparing surgery did not adversely affect biochemical progression even among men with perineural invasion.