

## Definition of the Borderline Condition in Multiple Trauma Patients: Role of Conventional Parameters

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**Background/Purpose:** Several recommendations for the classification of multiple trauma patients exist. In order to define the multiple trauma patient in the “borderline situation” we performed a database analysis to identify threshold levels of clinical parameters that are easily available in the early posttraumatic course.

**Methods:** A population-based trauma registry was used (TraumaRegister DGU). All patients were documented between January 1, 2002 and December 31, 2012. Inclusion criteria were age >16 years combined with significant isolated injury (defined as Abbreviated Injury Score [AIS] >3 points) and treated in the ICU, or polytrauma with an ISS >16 points. Patients were graded for their risk of death according to their true mortality rates: low risk (5%), intermediate risk (15%), and high risk (40%). Patients in extremis were excluded. Parameters recommended in previous publications were assessed. Threshold levels were established according to their associated mortality and their ability to determine low risk, intermediate risk, and high risk pathological changes. The primary end point was in-hospital mortality.

**Results:** 11,436 patients met the inclusion criteria. The mean ISS was  $22.7 \pm 11.2$  points. 73% of the patients were male. 95.6% sustained blunt injuries. Five clinical parameters were used to describe the risk situation as low, intermediate, or high. The intermediate risk threshold levels were as follows: systolic blood pressure on admission (76-90 mmHg), INR (international normalized ratio) (1.4-2.0), base deficit (8-10), NISS (New Injury Severity Score) (35-49), and pRBCs (packed red blood cells) administered (3-14). More aggravated alterations were considered as high risk pathological changes. Borderline patients were defined as having two or more intermediate risk pathological changes and no more than one high risk pathological change. Patients with more than one high risk pathological change were classified as “unstable”.

**Conclusion:** Borderline patients can be defined based on five conventionally used parameters: admission systolic blood pressure, base deficit, INR, NISS, and number of transfused units of red blood cells administered. These parameters can easily be determined and can be used interchangeably to identify a borderline situation in multiple trauma patients.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an “off label” use). For full information, refer to page 600.