

# Role Of Trauma Whole Body Ct Scan (Selayang Trauma Alert Diagnostic Protocol) In Establishing Direction Of Care For Major Trauma Patients

Fathullah N<sup>1</sup>, Hanim MT<sup>1</sup>, Hanif MN<sup>1</sup>, Gurjeet Singh a/l HarvendharSingh<sup>2</sup>

---

Corresponding author email id: [gurjeet.s@live.com](mailto:gurjeet.s@live.com)

**Keywords:** Trauma, Whole Body CT, Dual Bolus, Trauma Imaging

## BACKGROUND

Trauma is one of the leading cause of death in the world among young and middle aged people<sup>1</sup>. Currently in the damage control resuscitation suite of emergency department Selayang Hospital, a CT Selayang Trauma Alert Diagnostic (STAD) protocol was introduced as the gold standard Whole Body CT scan diagnostic work-up to identify hidden injuries, grade injuries and recognize the source of bleed being arterial or venous in origin in major trauma patients. Early and accurate detection of organ injuries, grading the injuries and recognizing its origin in patients presenting with poly trauma to the Emergency Department can change the direction of care from operative to conservative<sup>3</sup>.

## METHODOLOGY

All patients presenting with Major trauma (using the revised trauma score) from the 1<sup>st</sup> of April until the 1<sup>st</sup> of May 2023 were included in this study.

The damage control resuscitation suite for trauma patients was set up officially on the 1<sup>st</sup> of April and thus this date was used as a starting point. The data was collected for one month as it shows the case load of major trauma patients in a month.

Revised trauma score is a score used to assess a trauma patient to look for its severity and has been used as a triage tool in emergency departments because of its relative ease and time saving properties as it uses only 3 criteria<sup>2</sup>.

---

<sup>1</sup> Radiology Department, Hospital Selayang, Selangor, Malaysia

<sup>2</sup> Emergency Department, Hospital Selayang, Selangor, Malaysia

Within this cohort, patients who received a whole body CT, (CT STAD protocol) using the ED Selayang, criteria were analyzed and their disposition either to the Operating Room or conservative in acute care was studied.

In the damage control resuscitation suite of Hospital Selayang, a criterion has been set up using anatomical, physiological and mechanism of injuries parameters to identify patients suitable to go for a whole body CT scan. This criterion is done so that patients do not unnecessarily receive a whole body CT that can lead to radiation complications and also to identify those who can benefit from a whole body CT to ensure hidden injuries are picked up

## **RESULTS**

During the time of study from the 1<sup>st</sup> of April till the 1<sup>st</sup> of May, A total of 58 patients presented to the damage control resuscitation suite, with major trauma recognized objectively using the revised trauma score and out of this, 17 patients (29%) received a CT STAD Protocol. 41 patients did not receive the CT STAD protocol (71%)

Out of these 17 patients who received a CT STAD Protocol, 14 patients (82%) were treated conservatively in acute care units. Three out of 17 patients were brought to the operating room (18%).

## **CONCLUSION**

Only 29% of patients with major trauma presenting to the damage control resuscitation suite of emergency department hospital Selayang received a whole body CT scan/ CT STAD protocol. This may be due to the selective criteria in damage control suite ED Selayang which comprises of 3 different criteria including anatomical criteria, physiological criteria and mechanism of injury criteria to avoid unnecessary radiation to the major trauma patients and to pick up only the probable candidates with multi organ injuries who may benefit from the whole body CT scan to locate hidden injuries or changes in management.

Around 82% of patients who received a CT STAD protocol were treated conservatively. And only 18 % of patients went to the operating theatre. This may be because the hidden injuries could be identified accurately and known to be operative or conservative, of venous or arterial origins, low or high grade organ injuries were able to be identified accurately and avoided surgery.

## **LIMITATIONS**

Two patients who were treated conservatively had succumbed in the Emergency Department.

## REFERENCES

1. Rhee, P., Joseph, B., Pandit, V., Aziz, H., Vercruyse, G., Kulvatunyou, N., & Friese, R. S. (2014). Increasing trauma deaths in the United States. *Annals of surgery, 260*(1), 13-21.
2. Gilpin, D. A., & Nelson, P. G. (1991). Revised trauma score: a triage tool in the accident and emergency department. *Injury, 22*(1), 35-37.
3. Trupka, A., Waydhas, C., Hallfeldt, K. K. J., Nast-Kolb, D., Pfeifer, K. J., & Schweiberer, L. (1997). Value of thoracic computed tomography in the first assessment of severely injured patients with blunt chest trauma: results of a prospective study. *Journal of Trauma and Acute Care Surgery, 43*(3), 405-412.