Scoring Trauma with Revised Trauma Score in Scoring Patient Motility with Traumatic Head Injury

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Abstract

Background: Head traumatic is a condition where the head structure getting bump outside and having some potential to get brain function disruption. The patients assessment with head traumatic can use traumatic score, by using traumatic score will give quantitative assessment so it will be shown the traumatic degree and assessing the mortality patient.

Purpose: Revised traumatic score is the assessment physiologist by doing data summarized that include systole blood pressure, respiration, and Glasgow Coma Scale for knowing the patient mortality in head traumatic.

Method: This systematic review is begin by making question, determining the objectives then finding the appropriate key words to identify searching data that is need with the method and the objectives "AND" and "OR". After getting the data searching in 2005 up to 2019 by using database international request, pubmed, science direct and continue with PRISMA *flow* diagram and *JBI* critique tool up to get 6 articles that relevant to be analyzed be systematic review.

Result and Discussion: Traumatic Scoring with revised traumatic score is a physiologist scoring system that is used as medical instrument hospital that can help to determine the traumatic patients whether caring in primer hospital ormain traumatic.

Conclusion: Revised traumatic score is one of the traumatic assessment that able to know the patients mortality with head traumatic by using assessment indicator that is systole blood pressure, respirasi and *Glasgow Coma Scale*.

Keywords: *Scoring Traumatic,Revised Trauma Score, Head Traumatic.*

Introduction

Traumatic is define as physical injury or wound in the alive tissue that is caused by extrinsic agents, where in the Industrial and transportation in develop area donate the highest traumatic number(1). Head traumatic is a process where the traumatic happen directly or decelerations to the head that cause the damage to the skull and brain(2). Head traumatic is a trauma in the head skin, skull and brain that happened directly or indirectly in the head that caused the decrease of awareness even death(3) head traumatic become the biggest three caused of death in the world after cardiovascular and neoplasma.

Head traumatic prevalency is enough high in the world, head traumatic around 5,1 million become 8,4 million and 150- 170 Millian per 100 hthousand per person in a year. It around 50-60 million of new cases of traumatic in whole the world, The death of traumatic is 30-40% and 10% and the mortality has 5 Million in a year that caused million of people is disability because of the traumatic (4).

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Based on the result research in Kesehatan Dasar (Riskesdas), the head traumatic in Indonsia in 2013 is 1,24 incident of death because of traumatic and getting increase every year[5].

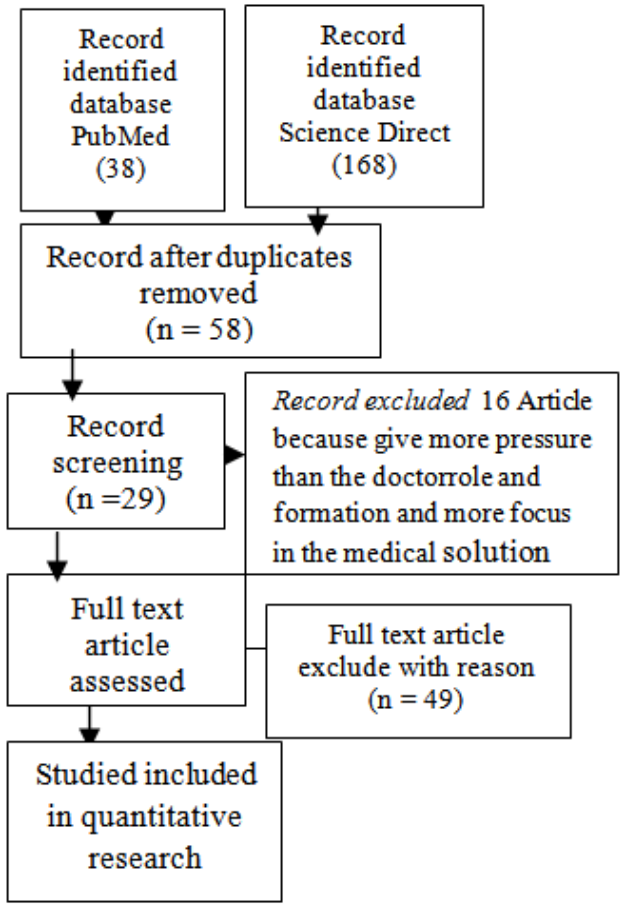
Most of the traumatic centre the fast examination is the must to prevent the disability up to death to the patient it need the client assessment by using traumatic scoring to translate the injury become the number that help to assess quantitatively. The client score with traumatic can be used traumatic score by using traumatic score that will give quantitative assessment so it will appear tha traumatic degree and scoring the possibility to live[6].

In the trauma score there is a trauma assessment that is revised trauma score (RTS). Scoring RTS is a physiological scoring system that is used as a prehospital health workforce instrument to help decide which trauma patients are taken to a primary care facility or to a trauma center. For hospital health workers, RTS helps decide which response rates are activated. RTS ≤11 is associated with 30% mortalityand must be bring to the hospital directly and having some fisiologys data include systole blood pressure, respiration and *Glasgow Coma Scale* (GCS)[1]. In the reliability and prognosis RTS shows the results that as same good as TS score, but RTS has several weaknesses there are counting code impractically. The problem with awareness degree in intubation, the influence of drugs and alcohol. RR change the physiology parameter by resustasion from the chaos of physiology un countable[6]` .

Method

This research consist of several stages there are determining the questions by PICOS method. The next stages is earning thedata to be reviewed this literature by using searching method "AND and OR" for each key, then using diagram that cosisit of identification, scrinning, appropriateness selection, and determining inclusive criteria and eksklusi criteria, In the last stage, The review writing by synthesize literature to get a systematic review[9].

Selection and document choosing by PRISMA diagram, in picture 1.



Picture 1. PRISMA diagram for identifying the literature

Result and Discussion

The definition head traumatic *as we know today is a head* injury that caused structural disruption or functional disruption whether whilst or permanent. *Center for Disease Control and Prevention* (CDC) said that 1,4 million of people in America suffer head traumatic. From that amount it is about 1,1 miliion of people are helped and excuse to going home from the emergency room, 235.000 is hospitalized and 50.000 is death[7].

Several scoring system can be used as the main of neurology status to the head traumatic patient. There are *Glasgow Coma Scale* (GCS), *Trauma Score*, *Trauma Score Revised*, dan *Abbreviated Injury Scale* (AIS)[8].

Head traumatictriggers several selullar and molecular so it appear *histochemical responses*, *molecular responses,* dan *genetic response* that cause secondary insult, in ischemic and weighted the primary brain damage[4].

Revised Trauma Score (*RTS*) physiologically where RTS is counted when the first time patient come. The scored parameter is *GCS* (*Glasgow Coma Scale*), respiration frequency. RTS is more intensive that use as the pre hospital staff to define whether the patient is caring in primary hospital or trauma center. To the hospital staff RTS helps to decide theresponse stage that deactivated RTS ≤11 that correlate mortality 30% that must be bring to the trauma center[6].

According to[9] trauma scoring system has been helped the way of doctor decision and it is possible to get more objective. Trauma scoring system change the worst of injury or prognosis to the next patient, bcome single numeric score and simplify the communication among the doctors. Scoring trauma system is divided become anatomy, physiology or the combination between anatomy and physiology.

Injury Abbreviations Scale (SIA) and Injury Rate Score based on SIA (SIS) is two examples of anatomy assessment that is most use Revised Trauma Score (RTS) and Kampala Trauma Score (KTS)is a physiology score. This research is gained the result in trauma scoring using and get the death number 6% (n = 20). TRISS and KTS has the high are in the bottom of ROC (AUC), 0,90 (95% CI 0,83-0,96), and 0,86 (95% CI 0,79-0,94), each KTS has sensitivity (90%, 95% CI 68-99%)while TEWS and RTS has the highest specify (each 91%, 95% CI 87-94%)[7].

According to kim et., al (2017)in this research explaine that Trauma Score Revise (RTS) is used in whole the world in pre hospital practice and in the Emergenct Department (ED) the setting of patient triase among the patient in derivation group, the mean age is 59 [43-73] years old, and 66,7% is men. Bottom area of characteristic curve operation receiver from RTS (0,948; 95% CI: 0,939-0,955) higher than AUC from TRISS-A (0,960; 95% CI: 0,952-0,967) significantly higher than origin TRISS (0,949; 95% CI: 0,941-0,957).

According to the research of [6] head injury is traumatic disruption from the brain function that caused deformities as shape memory or skull line and without intarsia bleeding in brain sub without the c;ose of brain continuity The Mann-Whitney Test resultresearch show that the correlation or mortality patent is 7 days of caring with GCS score SBP, RR and SpO2 with *p value* from all independent < 0.05. Regresy logistic axamination result shows that the similarity of RTS (GCS, SBP, RR) gas p value *Uji Hosmer and Lamesho* = 0.849, the number of sensitivity 0.93 *specificity* 0.863, *Positive Predictive Value* (PPV) 0.95, Negative *PredictiveValue* (NPV) 0.79, with AUC 0.942 (CI95% 0.88-0.99). So the similarity RTS (GCS, SBP, RR) has discrimination quality, celibacy and the accurate is good, so the similarity of RTS (GCS, SBP, RR) can be use as mortality predictor in head injury patient. The use of RTS (GCS, SBP, RR)is appropriate as the helping tools in triage of head injury patient.

According to [4] research trauma is the biggest cause in teenager and younger. The scoring system that change the quality of trauma in the needed score in her research is *Revised Trauma Score* (RTS), *Injury Severity Score* (ISS), dan *Trauma Related Injury SeverityScore* (TRISS). The research result shows that RTS is the easiest one to be applied when triage and pre hospital, it also recommended to be a part of multi trauma cases handling.

Conclusion

Head trauma is the condition where the head structure get bump from the outside and having a potential to appear the disruption in brain function, The early scoring of the trauma patient is using trauma scoring. Trauma scoring is one of the early step to assess the trauma by the number, One of the trauma scoring can be use is revised Trauma Score. RTS is trauma assessment physiologically by using systole bood pressure, respiration and GCS. revised trauma score is able to assess the patient mortality with head trauma with the enough high of spesifity and efectivity so the effective use in assess patient with head trauma.

Ethical Clearance: This article has been approved by the Medical faculty of Brawijaya University

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