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Moderatori: **Claudia Cicchini – Emmanuele Tafuri**

Alessandro Cipriano

“Minimal head injury” in pazienti in terapia con DOACs

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“Minimal head injury” in pazienti in terapia con DOACs

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Alessandro Cipriano, Dipartimento Emergenza, Pisa

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Minimal vs Minor

The New England Journal of Medicine

INDICATIONS FOR COMPUTED TOMOGRAPHY IN PATIENTS WITH MINOR HEAD INJURY

MICELLE J. HAYDEL, M.D., CHARLES A. PRESTON, M.D., TREVOR J. MILLS, M.D., SAMUEL LUBER, B.A., ERICK BLAUDEAU, M.D., AND PETER M.C. DEBLIEUX, M.D.

minor head injury.

Minor head injury was defined as loss of consciousness in patients with normal findings on a brief neurologic examination (normal cranial nerves and normal strength and sensation in the arms and legs) and a score of 15 on the Glasgow Coma Scale, as determined by a physician on the patient's arrival at the emergency department. Advanced emergency-medicine residents, under faculty supervision, performed the initial evaluation of all patients, including the determination of whether the patient had lost consciousness and of the score on the Glasgow Coma Scale and the neurologic examination. Patients were considered to have lost consciousness if a witness or the patient reported loss of consciousness by the patient or if the patient could not remember the

traumatic event. Patients with isolated deficits in short-term memory and an otherwise normal score on the Glasgow Coma Scale were considered to have a normal score on the scale. All patients included in the study underwent CT scanning. Patients who declined CT, had concurrent injuries that precluded the use of CT, or reported no loss of consciousness or amnesia for the traumatic event were excluded from the study. The CT scan was considered to be positive if it showed the presence of an acute traumatic intracranial lesion (a subdural, epidural, or parenchymal hematoma; subarachnoid hemorrhage; cerebral contusion; or depressed skull fracture). All patients with positive CT scans were admitted by the neurosurgical team and were followed until discharge in order to document any neurosurgical interventions.

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Haydel MJ et al.N Engl J Med. 2000 Jul 13;343(2):100-5

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The Canadian CT Head Rule for patients with minor head injury

Ian G Stiell, George A Wells, Katherine Vandemheen, Catherine Clement, Howard Lesiuk, Andreas Laupacis, R Douglas McKnight, Richard Verbeek, Robert Brison, Daniel Cass, Mary A Eisenhauer, Gary H Greenberg, James Worthington, for the CCC Study Group

Methods

Study setting and population

We undertook a prospective cohort study in ten Canadian community and teaching institutions and enrolled consecutive adult patients if they presented to one of the emergency departments after sustaining acute minor head injury. Eligibility was based upon the patients having all of the following: blunt trauma to the head resulting in witnessed loss of consciousness, definite amnesia, or witnessed disorientation; initial emergency department

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Stiell IG et al.Lancet. 2001 May 5;357(9266):1391-6

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1. Perdita di coscienza
2. Amnesia peri-trauma
3. Confusione o disorientamento post-traumatici
4. Deficit neurologici obiettivabili

"mild" head injury
"minor" head injury
"minimal" head injury
"low-risk" traumatic brain injury

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Davey K et al.Ann Emerg Med. 2018 Oct;72(4):342-350

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TRAUMA/ORIGINAL RESEARCH

Application of the Canadian Computed Tomography Head Rule to Patients With Minimal Head Injury

Kevin Davey, MD*; Turandot Saul, MD, RDMS; Geoffrey Russel, BS; Jonathan Wassermann, MD; Joshua Quaas, MD

240 pazienti con Minimal Head Injury

- 86.3% (207/240) Dimessi
- 13,8% (33/240) Ricoverati per ragioni varie
- 2,1% (5/240) Emorragia Cerebrale
- **0% (0/240) Trattamento Neurochirurgico o Decesso**

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Davey K et al.Ann Emerg Med. 2018 Oct;72(4):342-350

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Il ruolo degli Anticoagulanti

INTRACRANIAL BLEEDS AFTER MINOR AND MINIMAL HEAD INJURY IN PATIENTS ON WARFARIN

Khaled N. Alrajhi, MD, FRCPC, Jeffrey J. Perry, MD, MSC, CCFP-EM, and Alan J. Forster, MD, MSC, FRCPC

Table 2. Univariate Analysis of Patients with and without Intracranial Bleed

Clinical Feature	Intracranial Bleed (n = 28)	No Intracranial Bleed (n = 148)	*p*-Value
Age (mean, SD)	70, 15.6	80, 12.1	0.007
Males (%)	50.0	37.8	0.29
GCS (median)	15	15	0.87
INR (median, IQR)	2.45, 0.75	2.20, 0.85	0.12
Headache (%)	50.0	31.3	0.08
Loss of consciousness (%)	28.6	10.8	0.03
Confusion (%)	32.1	16.2	0.06
Amnesia (%)	14.3	10.8	0.5
Vomiting (%)	17.9	16.2	0.79
Raccoon eyes or Battle sign (%)	10.7	6.1	0.4
Minor head injury (n = 114) (%)	21.9	78.1	n/a
Minimal head injury (n = 62) (%)	4.8	95.2	n/a

SD = standard deviation; GCS = Glasgow Coma Scale score; INR = international normalized ratio; IQR = interquartile range.

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Alrajhi KN, et al. J Emerg Med. 2015 Feb;48(2):137-42

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Il ruolo degli Anticoagulanti

Risk of significant traumatic brain injury in adults with minor head injury taking direct oral anticoagulants: a cohort study and updated meta-analysis

Table 3 Clinical management and outcomes

Overall patient outcomes	
Outcomes	**N=148**
CT head imaging	
Yes	134, 90.5%
No	14, 9.5%
Adverse outcome	
Overall*	5, 3.4%
ICH	5. 3.4%
Neurosurgery	–
Re-admission	–
Death due to head injury within 30 days	1, 0.7%

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Fuller G et al. Emerg Med J 2020;37:666–673.

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Studio Clinico Osservazionale Restrospettivo Multicentrico Italiano

5 Dipartimenti di Emergenza Italiani

- Da Gennaio 2016 a Febbraio 2020

- Ospedale Civile Maggiore di Verona (90,000 annual visits)
- Policlinico Universitario di Pisa (90,000 annual visits)
- Ospedale Generale di Merano (70,000 annual visits)
- Policlinico Universitario di Verona (50,000 annual visits)
- Ospedale Generale di San Bonifacio (60,000 annual visits).

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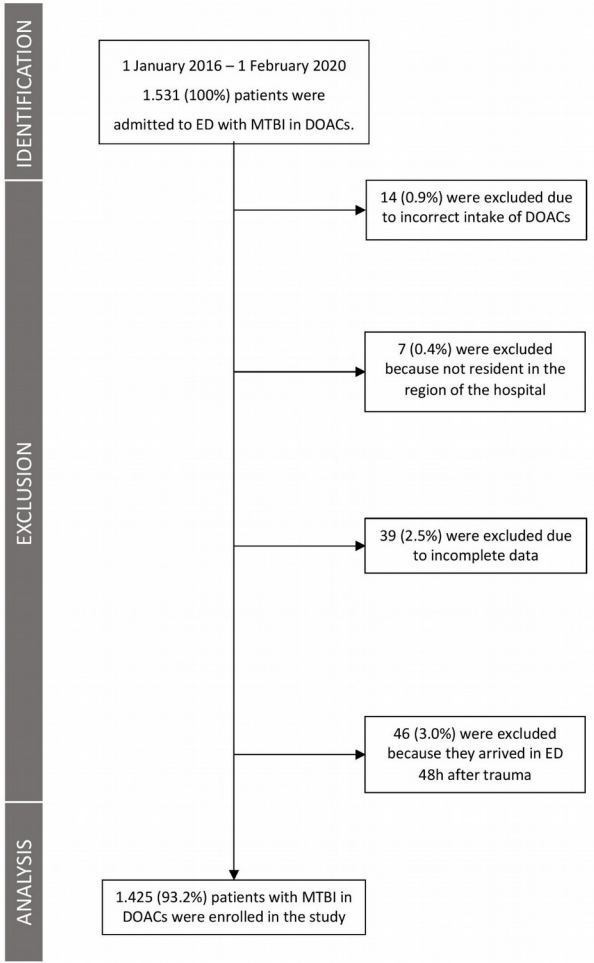
Cipriano A et al. in press



Cipriano A et al. in press

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Variables	Minimal Head Injury	Mild Traumatic Brain Injury	p-value
Patients, n (%)	1141 (80.1)	284 (19.9)	
Male Female	502 (44) 639 (56)	141 (49.6) 143 (50.4)	0.096
Age, years, median (IQR)	**82 (77-87)**	**84 (79-88)**	**0.003**
Xa inhibitors Thrombin inhibitors	876 (76.8) 265 (23.2)	226 (79.6) 58 (20.4)	0.342
AF, n (%)	(94.5)	(94)	0.756
VTE, n (%)	(6.0)	(8.0)	0.308

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Outcome

Variables	Minimal Head Injury	Mild Traumatic Brain Injury	p
Patients, n (%)	1141 (80.1)	284 (19.9)	
24h ICH Risk	3.9% (44/1141)	19.4% (55/284)	p<0.001
30 days Adverse Outcome	**0.3% (3/1141)**	5,4% (15/284)	p<0.001

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Propensity Outcome

Variables	Minimal Head Injury	Mild Traumatic Brain Injury	p
Patients, n (%)	184 (50)	184 (50)	
24h ICH Risk	7.1% (13/184)	14.1% (26/184)	ns
30 days Adverse Outcome	**0.0% (0/184)**	5,4% (10/184)	0.002

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Predictors

Variables	OR	p multivariate
Pre-Trauma Factors		
Past Neurosurgery	6.830 (2.462-18.946)	<0.001
Post-Trauma Factors		
Visible trauma above the clavicles	6.735 (2.051-22.112)	0.002
Post-traumatic vomiting	3.734 (1.022-13.639)	0.046
Post-traumatic Headache	3.479 (1.227-9.864)	0.019

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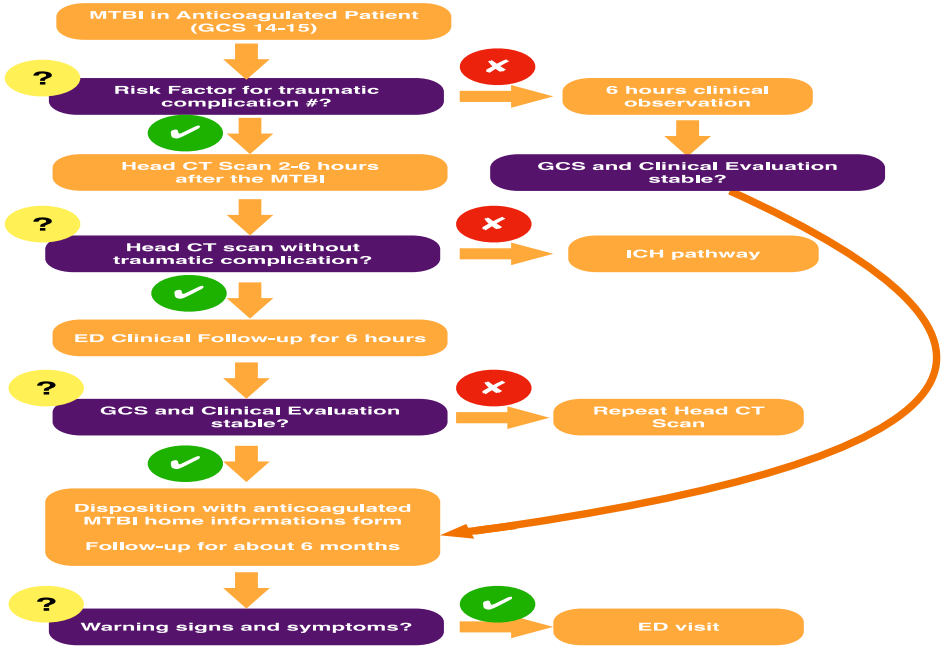
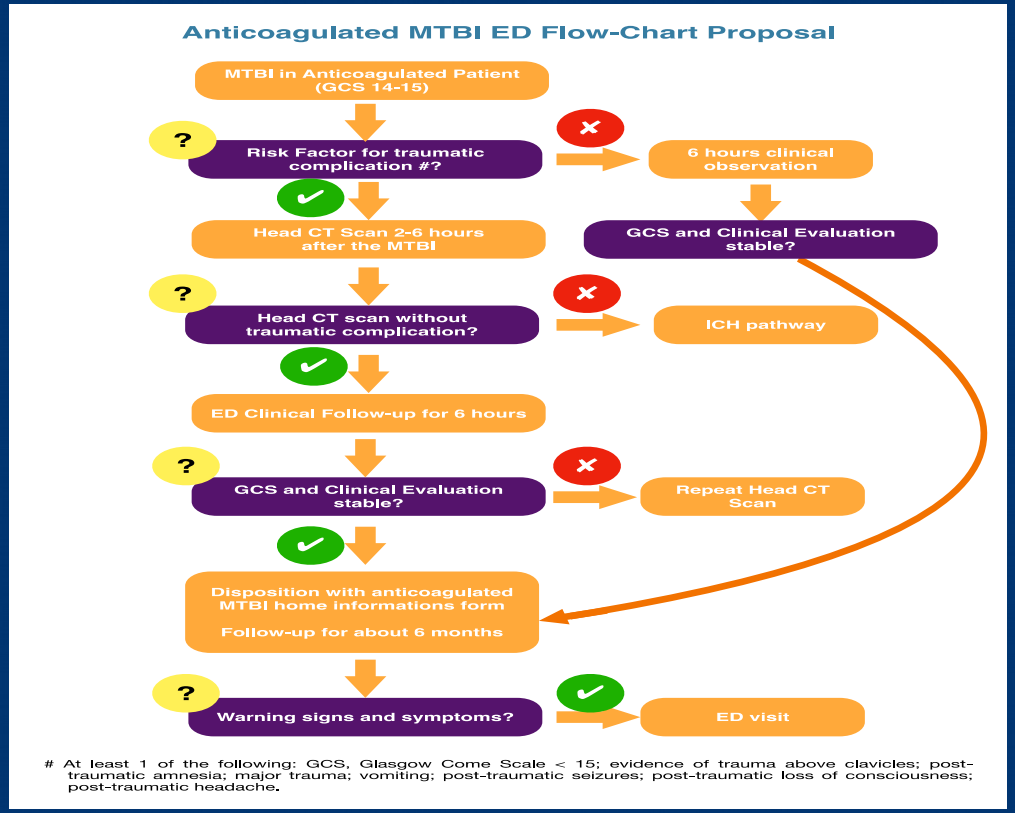
Anticoagulated MTBI ED Flow-Chart Proposal



At least 1 of the following: GCS, Glasgow Come Scale < 15; evidence of trauma above clavicles; post-traumatic amnesia; major trauma; vomiting; post-traumatic seizures; post-traumatic loss of consciousness; post-traumatic headache.



Grazie, Alessandro Cipriano

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