Traumatic Brain Injury Pathways

for Adult ED Patients Being Admitted to Trauma Service

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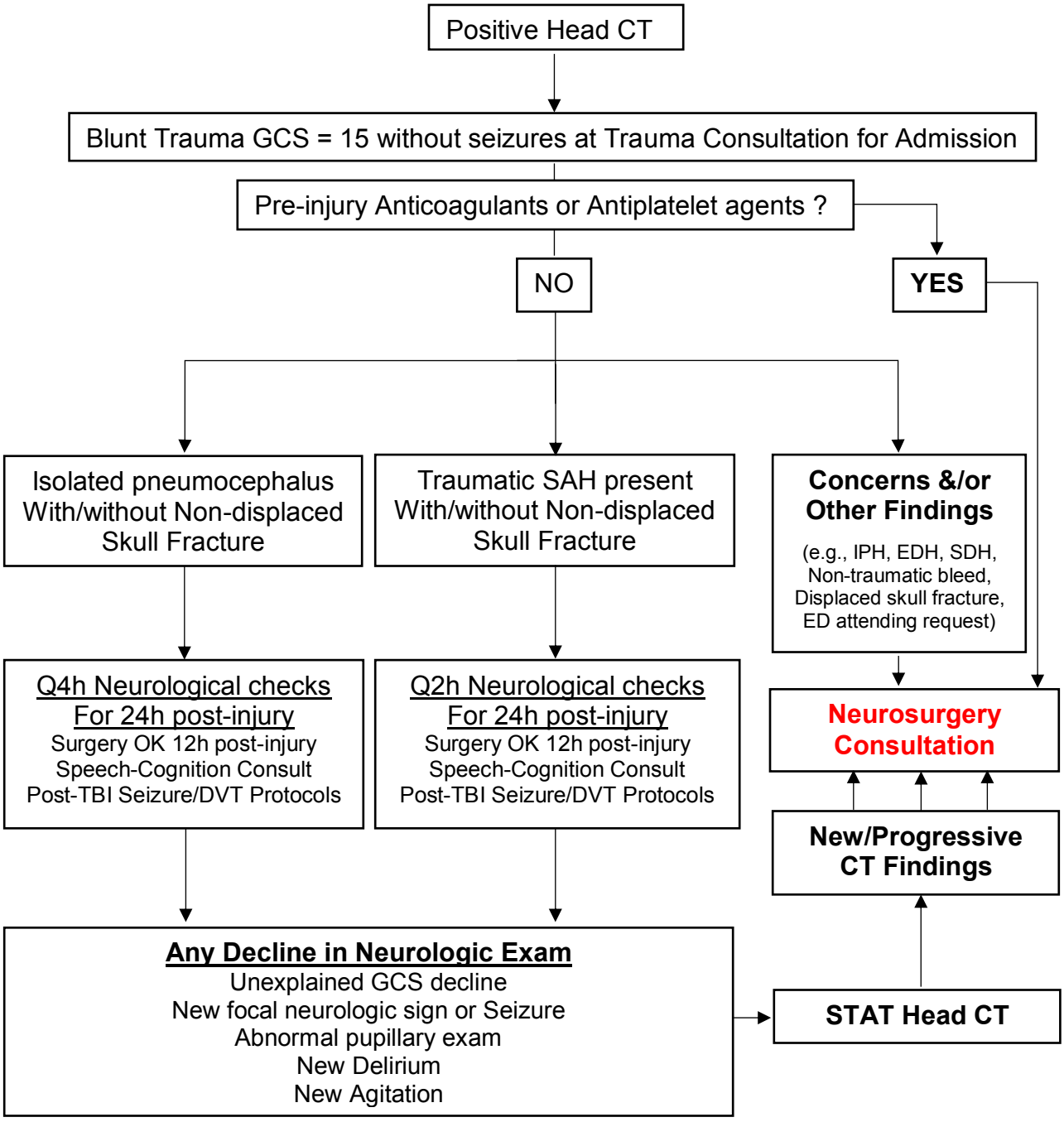
ABBREVIATIONS	
CBC	Complete Blood Count
Cl	Chloride
CPP	Cerebral Perfusion Pressure
CSF	Cerebrospinal Fluid
CT	Computed Tomography
CVP	Central Venous Pressure
d	Day
DVT	Deep Venous Thrombosis
ED	Emergency Department
EEG	Electroencephalography
EDH	Epidural Hematoma
EVD	External Ventricular Drain
FFP	Fresh Frozen Plasma
GCS	Glasgow Coma Scale
h	Hour
HOB	Head of Bed
ICH	Intracerebral/Intraparenchymal Hematoma/Hemorrhage
ICP	Intracranial Pressure
INR	International Normalized Ratio
IPH	Intracerebral/Intraparenchymal Hematoma/Hemorrhage
MDTC	Multidisciplinary Trauma Conference
mL	Milliliter
Na	Sodium
NSU	Neurosurgery
$PaCO_2$	Partial pressure of Carbon dioxide
PaO_2	Partial pressure of Oxygen
PI	Process Improvement
PT	prothrombin time
PTT	partial thromboplastin time
Q	Every
SAH	Subarachnoid hemorrhage
SBP	Systolic Blood Pressure
SDH	Subdural Hemorrhage
TBI	Traumatic Brain Injury
TICU	Trauma Intensive Care Unit
TPOPPS	Trauma Program Operational Process Performance Committee

Minimal Traumatic Brain Injury Pathway

for Adult ED Patients Being Admitted to Trauma Service



Traumatic Brain Injury Pathway, GCS 9-15

Positive CT Head

in Adult ED Patient Being Admitted to Trauma Service

Failed Minimal TBI Pathway
or GCS 9-15 (any mechanism) on initial evaluation

TRAUMA SERVICEADMISSION

Consult Neurosurgery
Consult Speech-Pathology
7d Seizure prophylaxis protocol
CBC, PT/INR, PTT
Consider Reversal of Anticoagulant/Antiplatelet Use

Consider Repeat Imaging within 6-24h, if any of following:

- High Risk CT Features:
  1. Subdural
  2. Epidural
  3. Intracerebral hemorrhage
- Clinical Deterioration
- Anticoagulant/Antiplatelet Use
- Consultant request

Traumatic Brain Injury Pathway, GCS < 9

ADULT ED PATIENT ADMITTED TO TRAUMA WITH POSITIVE HEAD CT

Consult Neurosurgery (***Trauma Attending & Neurosurgery Attending to have Direct Conversation for Major Diverging MultiTeam Plans***)

Consult Speech-Pathology

7d Seizure prophylaxis protocol; Arterial Blood Gas, CBC, PT/INR, PTT

Intubation

Keep $PaCO_2$ 35-40, PaO_2>60

HOB > 60 degrees (or reverse Trendelenberg until Spine cleared)

SBP > 90 mm Hg

Consider FFP (and/or K-Centra) and Platelet transfusion for target INR<2.0 / Platelet > 100K

Establish central access, arterial line; Maintain Euvolemia

Optimize Sedation and Analgesia, Consider Paralysis

Low threshold for Hyperosmolar Therapy

If ICP Monitor Placed

CPP<60

1st line: Phenylephrine

2nd line: Norepinephrine

ICP > 20

If EVD, then drain CSF

ICP > 20

Hyperosmolar Therapy

3% NaCl @ 30-50 mL/hr

CVP High: Mannitol bolus q6h

CVP low: 3% NaCl bolus q6h

Q6h BMP, Osm

Max: Na 160, Osm 320

ICP > 20

CPP<60

Persistent ICP > 20 and/or CPP < 60

- **Contact TICU attending and/or fellow**
- **Contact Neurosurgery (decompressive craniectomy vs. pentobarbital coma)**
- **Monitor Intra-abdominal pressures**
- **Consider pentobarbital coma with Neurology consult (Continuous EEG)**
- **Consider Palliative care consult**

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