

Vol 4, No 2 (2017)

February 2017

Table of Contents

Original Research Articles

[Correlation between histopathologic and radiological changes in articular cartilage of the knee joint with degenerative joint disease](#)

Hakan Cift, Ali Seker, Bulent Kilic, Murat Demiroglu, Asli Erdogan Cakir, Mehmet Isyar, Murat Bulbul, Mahir Mahirogullari

DOI: [10.18203/2349-2902.isj20164795](#)

[Improvement of surgical treatment of patients with critical ischemia of the lower extremities](#)

Shavkat Karimov, Akmal Irnazarov, Uktamkhon Askarovich Asrarov, Ulugbek Alijanov, Abdurasul Yulbarisov, Saidamir Djafarov, Rustam Muminov

DOI: [10.18203/2349-2902.isj20164790](#)

[Early and late outcomes of trans-abdominal pre-peritoneal and Lichtenstein repair for inguinal hernia, a comparative study](#)

Mahmoud Abdel Latif Bahram

DOI: [10.18203/2349-2902.isj20170191](#)

[Role of bedside sonography in the assessment of patients with chest trauma in the emergency department of Suez Canal University Hospital](#)

Khaled Morsy Salama, Islam Mohamed Elshaboury, Walid Mosallam Huissen, Hany Anees Eldomiaty, Karima Ibrahim Elghoboshy

DOI: [10.18203/2349-2902.isj20170192](#)

[Stapled hemorrhoidopexy versus open hemorrhoidectomy: a comparative study of short term results](#)

Idoor D. Sachin, Om Prakash Muruganathan

DOI: [10.18203/2349-2902.isj20164791](#)

[Simple cholecystectomy versus radical resection for stage II gallbladder cancer: a meta-analysis](#)

Zheng-jun Cheng, Chan Qiu, Da-xing Li, Jian-ping Gong, Qian Cheng

DOI: [10.18203/2349-2902.isj20170193](#)

[Clinical study of bowel obstruction in relation to etiological factors](#)

Pradeep Kumar Chitumalla, Naresh Kumar Vemulapally, Surya Narayana Reddy

DOI: [10.18203/2349-2902.isj20164846](#)

[Our experience with progressive perineal urethroplasty and anastomotic urethroplasty in post-traumatic urethral strictures in pediatric patients](#)

Abhishek Jaysukh Savalia, Prakash W. Pawar, Ajit S. Sawant, Ashwin Tamhankar, Sunil R. Patil, Gaurav Kasat  
DOI: [10.18203/2349-2902.isj20164704](https://doi.org/10.18203/2349-2902.isj20164704)

[Limberg flap for pilonidal sinus: an institutional study](#)  
Sameer Ahmed Mulla, Srinivas Pai, Prakash Mahalingashetty  
DOI: [10.18203/2349-2902.isj20164700](https://doi.org/10.18203/2349-2902.isj20164700)

[The problem of burns](#)  
Bhimanagouda V. Goudar, Sidharth Agarwal, Yamanur P. Lamani, Shankar Gururaj, Veerbhadra Gouda  
DOI: [10.18203/2349-2902.isj20164847](https://doi.org/10.18203/2349-2902.isj20164847)

[An observational study on the incidence of HER-2/neu receptor over-expression and comparison of clinical presentation between HER-2/neu positive and HER-2/neu negative breast cancer](#)  
Sajib Chatterjee, Madan Mohan Mukherjee, Nemai Chandra Nath, Saugata Samanta, Asis Kumar Saha  
DOI: [10.18203/2349-2902.isj20170073](https://doi.org/10.18203/2349-2902.isj20170073)

[Comparison of single incision laparoscopic cholecystectomy with conventional laparoscopic cholecystectomy using conventional laparoscopic instrument: a prospective observational study](#)  
Samir Deolekar, Bhushankumar A. Thakur, Bhushan Jajoo, Parnika R. Shinde  
DOI: [10.18203/2349-2902.isj20164793](https://doi.org/10.18203/2349-2902.isj20164793)

[A descriptive study on the surgical anatomy of external laryngeal nerve in patients undergoing thyroidectomies at a tertiary care center in South India](#)  
Rajesh P. S., Jisha Kamalakshy, Saravanan T.  
DOI: [10.18203/2349-2902.isj20164799](https://doi.org/10.18203/2349-2902.isj20164799)

[Epidemiological, demographic and risk factor profile in patients harbouring various types of gallbladder calculi: a cross sectional study from a south Indian tertiary care hospital](#)  
Sasi M. Parambil, Siddharth Matad, Soman K. C.  
DOI: [10.18203/2349-2902.isj20164794](https://doi.org/10.18203/2349-2902.isj20164794)

[Varicose veins: a clinical study](#)  
Sameer Ahmed Mulla, Srinivas Pai  
DOI: [10.18203/2349-2902.isj20164701](https://doi.org/10.18203/2349-2902.isj20164701)

[Clinical profile of patients with pancreatitis](#)  
MD. Shakeel, Syed Shahid Irfan  
DOI: [10.18203/2349-2902.isj20164702](https://doi.org/10.18203/2349-2902.isj20164702)

[Acute gall bladder perforation: case series over three years](#)  
Desh Pal Singh, Sharadendu Bali, Maneshwar Singh Utaal  
DOI: [10.18203/2349-2902.isj20164800](https://doi.org/10.18203/2349-2902.isj20164800)

[Clinicopathological study of Ileal perforation: study in tertiary center](#)  
Rangappa Poornima, K. L. Venkatesh, Goutham M. V., . Nirmala, Noorulla Hassan  
DOI: [10.18203/2349-2902.isj20164796](https://doi.org/10.18203/2349-2902.isj20164796)

Liver abscess presentation and management: a retrospective study

Kemparaj T., Mohammed Rehan Khan, Sagar Narayan

DOI: [10.18203/2349-2902.isj20170089](https://doi.org/10.18203/2349-2902.isj20170089)

Assessment of rational use of antibiotics in surgical prophylaxis and post-operative cases at district hospital Gulbarga

Zaheeruddin Ather, N. Lingaraju, Santosh Lakshman, S. S. Harsoor

DOI: [10.18203/2349-2902.isj20170038](https://doi.org/10.18203/2349-2902.isj20170038)

Total serum calcium and corrected calcium as severity predictors in acute pancreatitis: a prospective study in a tertiary hospital in South India

Unnikrishnan Edakkepuram, Muhammad Navas N. K., Sasi M. Parambil, Siddharth Matad

DOI: [10.18203/2349-2902.isj20164848](https://doi.org/10.18203/2349-2902.isj20164848)

Surgical management of pancreatic ascites

Surya Ramachandra Varma Gunturi, Konidala M.V.S. Suman, Sambhi Reddy G., Dama V.L. Narayana Rao, Prabhakar B., Malleshwara Rao G.L.N

DOI: [10.18203/2349-2902.isj20170088](https://doi.org/10.18203/2349-2902.isj20170088)

Relationship between initial fibrinogen level with coagulopathy and mortality in multiple trauma patients

Reno Rudiman, Lyana Sulistyanti, Nurhayat Usman

DOI: [10.18203/2349-2902.isj20170194](https://doi.org/10.18203/2349-2902.isj20170194)

Abdominal symptoms and its outcome in gallbladder diseases following routine and emergency cholecystectomy

Bhanumati Giridharan, P. Madhivadhanam

DOI: [10.18203/2349-2902.isj20170195](https://doi.org/10.18203/2349-2902.isj20170195)

Clinical evaluation of chronic lower limb ischaemia and their management

Basavanandswami C. Hartimath, Mima Maychet B. Sangma

DOI: [10.18203/2349-2902.isj20170196](https://doi.org/10.18203/2349-2902.isj20170196)

Evaluation of medial meniscal injury and anterior cruciate ligament tear by MRI with arthroscopic correlation

Chiranjib Murmu, Pushpakant Tiwari, Vijender Kumar Agrawal

DOI: [10.18203/2349-2902.isj20170197](https://doi.org/10.18203/2349-2902.isj20170197)

Our experience in gastrointestinal perforations: a retrospective study

Thammegowda Kemparaj, Narasimhamurthy Kadirehalli Narasimhaiah, Ravikiran Keragodu Mayigaiah

DOI: [10.18203/2349-2902.isj20170198](https://doi.org/10.18203/2349-2902.isj20170198)

Gall bladder specimen following cholecystectomy: a resource

Bhanumati Giridharan, P. Madhivadhanam

DOI: [10.18203/2349-2902.isj20170199](https://doi.org/10.18203/2349-2902.isj20170199)

Clinico-pathological study of intestinal obstruction and its management

Samir Shukla, Krishna Kumar, Bhupesh Khusram, Mahendra Damor

DOI: [10.18203/2349-2902.isj20170200](https://doi.org/10.18203/2349-2902.isj20170200)

Evaluation of results of primary cementless total hip arthroplasty in osteoarthritis

Arshad Bashir, Qazi Manan, Faisal younis Shah, Hayat Ahmad Khan, Mohammad Iqbal Wani, Mehrajud Din Tantray, Shakir Rashid

DOI: [10.18203/2349-2902.isj20170201](https://doi.org/10.18203/2349-2902.isj20170201)

Efficacy of prolene hernia system in comparison to Lichtenstein mesh repair

Hota P. K., Mahesh S. V.

DOI: [10.18203/2349-2902.isj20170202](https://doi.org/10.18203/2349-2902.isj20170202)

A retrospective study of management of diabetic foot ulcer in tertiary care hospital in North Karnataka

Eshwar B. Kalburgi, Yamanur P. Lamani, Bheemanagouda V. Goudar, Bheemappa K. Bhavi, Mohammed A. Kharkazi, Sidharth Agarwal

DOI: [10.18203/2349-2902.isj20170203](https://doi.org/10.18203/2349-2902.isj20170203)

C-reactive protein: an early predictor of sepsis in patients with thermal burns

Joby John, Meer M. Chisthi, Krishnakumar G. Kuttanchettiyar

DOI: [10.18203/2349-2902.isj20170204](https://doi.org/10.18203/2349-2902.isj20170204)

Clinical study of varicose veins of lower limbs

Kiran Shankar H.

DOI: [10.18203/2349-2902.isj20170205](https://doi.org/10.18203/2349-2902.isj20170205)

Risk factors for 30-day unplanned readmission among patients undergoing laparotomy for perforation peritonitis

Sanjay Marwah, Priyanka Singla, Mahavir Singh, Himanshu Sharma

DOI: [10.18203/2349-2902.isj20170206](https://doi.org/10.18203/2349-2902.isj20170206)

Breast cancer, Clinical presentations, Risk factors, Staging

Mohammad Fazelul Rahman Shoeb, Anil Reddy Pinate, Poonam Prakash Shingade

DOI: [10.18203/2349-2902.isj20170207](https://doi.org/10.18203/2349-2902.isj20170207)

Is using peritoneal drains in bowel surgeries beneficial?

Lata N. Bhoir, Nilesh Y. Jagne, Divya Murali

DOI: [10.18203/2349-2902.isj20170208](https://doi.org/10.18203/2349-2902.isj20170208)

Comparison between FOUR score and GCS in assessing patients with traumatic head injury: a tertiary centre study

Sharath S. Nair, Anilkumar Surendran, Rajmohan B. Prabhakar, Meer M. Chisthi

DOI: [10.18203/2349-2902.isj20170209](https://doi.org/10.18203/2349-2902.isj20170209)

A comparative study between totally extraperitoneal and transabdominal preperitoneal laparoscopic inguinal hernia repair techniques

Samir Ushakant Rambhia, Rajan Modi

DOI: [10.18203/2349-2902.isj20170210](https://doi.org/10.18203/2349-2902.isj20170210)

A prospective study on suture ligation of internal hemorrhoids without Doppler guidance for the treatment of symptomatic hemorrhoid disease

Pradeep Saxena, Yogendra S. Bhakuni

DOI: 10.18203/2349-2902.isj20170211

Gastroscopic evaluation of patients with dyspeptic symptoms with incidental finding of cholelithiasis

Minakshi Gadahire, Ashwin Pai, Mohan Joshi

DOI: 10.18203/2349-2902.isj20170212

Prevalence of iodine deficiency among multinodular goiter patients: a South Indian study

Nishad Kerakada, Ganesh Manikantan, Meer M. Chisthi

DOI: 10.18203/2349-2902.isj20170213

Frequency of infra-orbital nerve injury after a Zygomaticomaxillary complex fracture and its functional recovery after open reduction and internal fixation

Maria Noor, Yaser Ishaq, Malik Adeel Anwar

DOI: 10.18203/2349-2902.isj20170214

A comparative study between Mannheim peritonitis index and APACHE II in predicting the outcome in patients of peritonitis due to hollow viscous perforation

Pawanjeet Kumar, Kundan Singh, Amarnath Kumar

DOI: 10.18203/2349-2902.isj20170215

Clinical profile and management of breast cancer in women in a rural based tertiary care hospital our experience

Ambikavathy Mohan, Chandan Kumar

DOI: 10.18203/2349-2902.isj20170216

Predictors of malignancy in solitary nodule thyroid

Prasad Paul, Karatparambil Abid Ali, Mohammed Jasir

DOI: 10.18203/2349-2902.isj20170217

Gastrointestinal perforations: a tertiary care center experience

Parimala S. Devi, Ganesh Manikantan, Meer M. Chisthi

DOI: 10.18203/2349-2902.isj20170218

A randomized controlled trial evaluating the efficacy of mastectomy flap quilting sutures in reducing post modified radical mastectomy seroma formation

Madhu B. S., Naveen Kumar Reddy M., Shashi kumar H. B., Sangeetha Kalabairav, Abilash V. Reddy, Subramanya S. Mallikarjunappa

DOI: 10.18203/2349-2902.isj20170219

Clinical profile of infantile pelviureteric junction obstruction

Venkatesh K. L., S. R. Raghu

DOI: 10.18203/2349-2902.isj20170220

The role of rebound tenderness in acute appendicitis and appendicular perforation

Yashwant R. Lamture, Varsha P. Gajbhiye

DOI: 10.18203/2349-2902.isj20170221

A study of gall stone disease from a tertiary care center of Madhya Pradesh, India

Veerabhadrapa P. S., Priyanka Tank, Abhishek Singh, Shewtank Goel, Parth Nathwani  
DOI: [10.18203/2349-2902.isj20170222](https://doi.org/10.18203/2349-2902.isj20170222)

[Hydrostatic reducibility of intussusception among different age groups in paediatric population-a descriptive study](#)

Sreejith Haridas, Vineed S., K. Sivakumar  
DOI: [10.18203/2349-2902.isj20170223](https://doi.org/10.18203/2349-2902.isj20170223)

[Effect of single dose pre-operative antibiotic prophylaxis versus conventional antibiotic therapy in patients undergoing lichtenstein tension free mesh repair](#)

Madhu B. S., Shashi Kumar H. B., Naveen Kumar Reddy M., Abilash V. Reddy, Sangeetha Kalabhairav  
DOI: [10.18203/2349-2902.isj20170224](https://doi.org/10.18203/2349-2902.isj20170224)

[Profile and pattern of obstructive jaundice cases from a tertiary care teaching hospital of Uttar Pradesh](#)

Ashok Kumar Gupta, Abhishek Singh, Shwetank Goel, Rakesh Tank  
DOI: [10.18203/2349-2902.isj20170225](https://doi.org/10.18203/2349-2902.isj20170225)

[A comparative study of the incidence of pain and infection in gall bladder extraction via umbilical and epigastric port](#)

Jugendra Pal Singh Shakya, Neelabh Agrawal, Arun Kumar, Akash Singh, Bhupesh Gogia, Charu Yadav  
DOI: [10.18203/2349-2902.isj20170226](https://doi.org/10.18203/2349-2902.isj20170226)

[Efficacy and safety of ultrasound guided foam sclerotherapy with sodium tetradecyl sulphate for residual and minor varicosities](#)

Madhu B. S., Shashi Kumar H. B., Naveen Kumar Reddy M., Sangeetha Kalabhairav, Abilash Reddy V.  
DOI: [10.18203/2349-2902.isj20170227](https://doi.org/10.18203/2349-2902.isj20170227)

[The use of ultrasonographic and Alvarado scores in evaluating abdominal pain suggestive of acute appendicitis](#)

Jorge Fernández Álvarez, José Manuel Gómez López, Alberto M González Chávez, Benjamín Valente Acosta, Diego Abelardo Álvarez Hénandez, Silviano Ríos Pascual, Alain Arturo García Vázquez  
DOI: [10.18203/2349-2902.isj20170228](https://doi.org/10.18203/2349-2902.isj20170228)

## Case Reports

[Laparoscopic management of penetrating abdominal trauma](#)

Mirza Faraz Saeed, Abdul Menem Abualseel, Abbas Ali, Mobeen Ashfaq  
DOI: [10.18203/2349-2902.isj20170229](https://doi.org/10.18203/2349-2902.isj20170229)

[Primary anorectal melanoma: a case of 5 year disease-free survival](#)

Monica Urbani, Marina Troian, Gabriele Bellio, Marina Bortul  
DOI: [10.18203/2349-2902.isj20170230](https://doi.org/10.18203/2349-2902.isj20170230)

[A rare case of isolated cysticercosis of brachialis muscle](#)

Mohit Mohindra, Jitesh Kumar Jain, Mukul Mohindra  
DOI: [10.18203/2349-2902.isj20164792](https://doi.org/10.18203/2349-2902.isj20164792)

[Acute lumbar paraspinal compartment syndrome: a case report and detailed literature review](#)

Ahlam M. Alfaraj, Zainab M. Alfaraj, Abdullah G. Alsahwan  
DOI: [10.18203/2349-2902.isj20164699](https://doi.org/10.18203/2349-2902.isj20164699)

[Synchronous liposarcoma of pancreas and stomach: a case report and literature review](#)  
Hua-Feng Jiang, Xiao-Jiang Ying  
DOI: [10.18203/2349-2902.isj20170231](https://doi.org/10.18203/2349-2902.isj20170231)

[Nursing approach to Zenker's diverticulum surgery patient](#)  
Sevim Sen, Cigdem Canbolat Seyman, Marios Konstantinou, Stelios Gaitanakis  
DOI: [10.18203/2349-2902.isj20170232](https://doi.org/10.18203/2349-2902.isj20170232)

[Mucocele of the appendix: a rare case report](#)  
Sudarshan P. B., Reshma S.  
DOI: [10.18203/2349-2902.isj20170233](https://doi.org/10.18203/2349-2902.isj20170233)

[Fibroadenoma in an operated case of malignant phyllodes tumour: a rare case report](#)  
Iresh Shetty, Tushar Jadhav, Aditya Lad, Gaurav Batra, Ishant Rege, Saurabh Thakkar  
DOI: [10.18203/2349-2902.isj20170234](https://doi.org/10.18203/2349-2902.isj20170234)

[A rare case of cavernous hemangioma of neck mimicking lipoma](#)  
Aditya Parimal Lad, Paras Batra, Iresh Shetty, Ishant Rege, Gaurav Batra, Akriti Rajkumar Tulsian, Saurabh Mahesh Thakkar  
DOI: [10.18203/2349-2902.isj20170235](https://doi.org/10.18203/2349-2902.isj20170235)

[Primary angiosarcoma of the breast: a rare entity](#)  
Dyan D'Souza, Ann Sunny, Rahul Sima, Anthony P. Rozario  
DOI: [10.18203/2349-2902.isj20170236](https://doi.org/10.18203/2349-2902.isj20170236)

[Congenital prepubic sinus: a series of six cases of extremely rare congenital anomaly](#)  
Sudhir Singh, Digamber Chaubey, J. D. Rawat, Gurmeet Singh  
DOI: [10.18203/2349-2902.isj20170237](https://doi.org/10.18203/2349-2902.isj20170237)

[A case report on traumatic diaphragmatic injury repaired with prolene mesh](#)  
Dhruva Sharma, Anil Sharma, Parth Vaghela, Sunil Dixit  
DOI: [10.18203/2349-2902.isj20170238](https://doi.org/10.18203/2349-2902.isj20170238)

[Giant hepatic hydatid cyst: one: in difficult hepatic segments VIII and the other: in segment VI](#)  
M. S. Ray, B. S. Deepak  
DOI: [10.18203/2349-2902.isj20170239](https://doi.org/10.18203/2349-2902.isj20170239)

[A rare case of adult Ileo-ileal intussusception due to inflammatory fibroid polyp](#)  
Nitin Kalaskar, Sharad M. Tanga, Ravindra B. Dhaded, Puneeth Thalasta  
DOI: [10.18203/2349-2902.isj20170240](https://doi.org/10.18203/2349-2902.isj20170240)

[An unusual case of relative polycythemia with complication of pseudocyst of pancreas](#)  
Shruthi Kamal Venkat, Reshma Sattar, Dinesh Kumar  
DOI: [10.18203/2349-2902.isj20170241](https://doi.org/10.18203/2349-2902.isj20170241)

[Unusual case of upper urinary tract obstruction: a case report](#)

Amarjot Singh, Rahul Bhushan, Prerna Chadha  
DOI: [10.18203/2349-2902.isj20170242](https://doi.org/10.18203/2349-2902.isj20170242)

[Pyelolithotomy of simple right sided ectopic kidney with renal stone](#)  
Sarveer Meravi, M. M. Mudgal, Naveen Kushwah  
DOI: [10.18203/2349-2902.isj20170243](https://doi.org/10.18203/2349-2902.isj20170243)

[Pulmonary blastoma: a case report of a rare lung tumour](#)  
Bishal Gautam, Sanjeev Devgarha, R. M. Mathur, Anula Sisodiya  
DOI: [10.18203/2349-2902.isj20170244](https://doi.org/10.18203/2349-2902.isj20170244)

[Quacks a menace for surgeons: management of a difficult post circumcision deformity](#)  
Madhubari Vathulya  
DOI: [10.18203/2349-2902.isj20170245](https://doi.org/10.18203/2349-2902.isj20170245)

[A rare case of superficial acral fibromyxoma](#)  
Jawahar Krishnaswamy, Vinod Balaji, Khalilur Rahman, Samson Ravi  
DOI: [10.18203/2349-2902.isj20170246](https://doi.org/10.18203/2349-2902.isj20170246)

[Kshar sutra in Pilonidal sinus: a minimal invasive modality of management](#)  
Murtaza Akhtar, Himanshu Gupta, Sunil Mishra, Murtuza Rangwala, Anil Kad  
DOI: [10.18203/2349-2902.isj20170247](https://doi.org/10.18203/2349-2902.isj20170247)

[Infected hepatic cyst: an unusual differential diagnosis of peptic perforation](#)  
Sanchit Jain, Mahesh Mangal  
DOI: [10.18203/2349-2902.isj20170248](https://doi.org/10.18203/2349-2902.isj20170248)



## Original Research Article

# Relationship between initial fibrinogen level with coagulopathy and mortality in multiple trauma patients

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### ABSTRACT

**Background:** In trauma induced coagulopathy (TIC), low fibrinogen value is often found and plasma fibrinogen reached low value earlier than other parameters of coagulation factors. Initial fibrinogen value is strongly correlated to the injury severity score (ISS) and be an independent predictor of mortality. This study was expected to see the relationship between initial fibrinogen level with coagulopathy and mortality, so it can predict early coagulopathy and can prevent bleeding complications that lead to mortality.

**Methods:** The study was conducted prospectively. The entire examination obtained from patients with multiple trauma. Fibrinogen levels and coagulopathy were taken from the blood laboratory tests in conjunction with other routine examination when patients were admitted to the ER of Hasan Sadikin General Hospital. Outcome parameters were the incidence of coagulopathy and mortality. Statistical analyses were performed to look at the significance of relationships.

**Results:** Of the 25 patients with multiple trauma obtained a majority of 80% were male patients and with the highest incidence mechanism was head trauma as many as 16 people (64%). There were 8 patients (32%) experienced coagulopathy and mortality occurred in 7 patients (28%). Chi square analysis found a significant association between fibrinogen and coagulopathy ( $p = 0.043$ ), while the association between initial fibrinogen with mortality was not significant ( $p = 0.341$ ).

**Conclusions:** Initial fibrinogen level is significantly associated with coagulopathy but it cannot predict mortality in patients with multiple trauma. Further study is needed in order to assess the benefit of these results on the management of multiple trauma patients.

**Keywords:** Coagulopathy, Fibrinogen, ISS, Multiple trauma, Mortality

### INTRODUCTION

Coagulopathy which occurs in trauma is known as trauma induced coagulopathy (TIC). Reported by Brohi, that one in seven deaths caused by trauma and as much as 30% from all the trauma patients came to the hospital in conditions of TIC. TIC is a consequence of the slow hemodilution, acidosis, hypothermia and the loss of clotting factors through an active bleeding. Coagulopathy

caused by severe trauma can be life threatening and can be a predictor of morbidity and mortality.<sup>1-8</sup>

In TIC state, low fibrinogen value is often encountered, and getting worse in the event of trauma with bleeding. Severe tissue injury may cause hypoperfusion that leads to a cascade of systemic anticoagulation and its subsequent hyperfibrinolysis, in which the value of fibrinogen in plasma tends to be low. Plasma fibrinogen