ORIGINAL ARTICLE

Practice and Outcome of Paediatric Immune Thrombocytopenia in Northern State of East Coast Malaysia

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ABSTRACT

Introduction: Paediatric immune thrombocytopenia (ITP) is an autoimmune disorder where the immune system mistakenly destroys platelets, leading to isolated thrombocytopenia. This study aimed to evaluate the demographic profile, current practice, and factors influencing outcomes in paediatric ITP. **Methods:** A ten-years retrospective, cross-sectional study was conducted at three major hospitals in Northern state of East Coast Malaysia. A total of 86 children aged less than 13 years old were enrolled with diagnosis of ITP. Patient characteristics, laboratory data, management options and outcome of ITP were collected from medical records. Descriptive statistics, simple and multiple logistic regression were used to determine factors contributing to chronic ITP. **Results:** Mean age (SD) at diagnosis for acute and chronic ITP were 4.0 (3.1) and 5.6 (3.3) years, respectively. The most common presentation was mild bleeding (44.1%), however two patients presented with intracranial haemorrhage. Preceding illnesses, including upper respiratory tract infections, acute gastroenteritis, and viral illnesses, were reported in 48.9% of cases. The majority of ITP cases resolved within six months, with 31.8% progressing to chronic ITP. Among chronic cases, 51.9% achieved complete response, 22.2% response, and 25.9% were non-responders. The odds of those with presence of giant or large platelet to develop chronic ITP is 4.8 times in comparison to those without. No mortality reported in this study. **Conclusion:** The most impactful finding was that the presence of giant platelets increased the odds of chronic ITP by 4.8 times.
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INTRODUCTION

Paediatric immune thrombocytopenia (ITP) was first described in the early 20th century as a condition characterised by unexplained bleeding due to low platelet counts. Initially termed "idiopathic thrombocytopenic purpura," the disorder was believed to be primarily a haematologic disease without a clear cause (1).

By the mid-20th century, the role of autoimmunity in ITP was recognized, leading to the understanding that the condition was caused by the immune system mistakenly attacking platelets (2). This shift in understanding prompted the development of new diagnostic and treatment approaches.

Early treatments focused on managing symptoms, with splenectomy being a common intervention for severe cases (3). However, the advent of corticosteroids and intravenous immunoglobulin in the latter half of the 20th century revolutionised treatment, offering non-surgical options that could rapidly increase platelet counts (4).

In recent decades, research has further refined our understanding of ITP, distinguishing between acute and chronic forms of the disease and emphasising the importance of individualised treatment approaches. The introduction of thrombopoietin receptor agonists (TPO-RAs) marked another significant advancement particularly for chronic ITP (5,6).

It is crucial to differentiate ITP from other serious causes of thrombocytopenia, particularly acute lymphoblastic leukaemia (ALL), which can present similarly with low platelet counts but requires a vastly different therapeutic approach. In some cases of thrombocytopenia where the diagnosis is uncertain or when atypical features are present, bone marrow aspiration (BMA) is necessary to rule out ALL or other haematologic malignancies. This diagnostic precision is vital to ensure that appropriate and timely treatment is administered.

While most paediatric ITP cases achieve complete remission, some progress to chronic ITP. Contributing factors to the development of chronic ITP include age of onset, gender, and initial platelet count (7). Giuseppe et al. suggested that a preceding infection may also play a role, while David P. et al. added recent vaccination as a potential factor (8, 9). Furthermore, data from the Intercontinental Cooperative ITP Study Group (ICIS) in 2013 supported the degree of bleeding at initial presentation as a significant risk factor (10). Despite these multiple influencing factors, predicting whether a patient will develop acute or chronic ITP at the time of diagnosis remains challenging, as highlighted by Donato H et al (11).

In Malaysia, the latest Clinical Practice Guidelines (CPG) for ITP was published in the year 2006 (12). Apart from this, there has been a paucity of published data pertaining to paediatric ITP locally in Malaysia and regionally in the nearby countries. Therefore, we embarked on this study to compensate for and serve as a base for data registry and as an aid to better understand the natural history of ITP in the paediatric population in Malaysia as compared to other centres world-wide. The Northern East Coast of Malaysia represents a unique demographic with higher proportions of rural communities and potential differences in healthcare access and treatment practices. However, regional data on paediatric ITP is limited, warranting this focused analysis.

MATERIALS AND METHODS

Research Design

A retrospective cross-sectional study was carried out in selected hospitals in the northern state of East Coast, Malaysia. The data collected was from January 2012 to December 2021. All patient's information including patients' gender, age, ethnicity, date of diagnosis, laboratory data and treatment received were obtained from Patient Management System or medical records in the Record Unit. The search was done using ICD-10 code of D69.3.

Study Location

Kelantan, a northern state in the East Coast of Peninsular Malaysia, occupies a land area of 15,101 km². The population of Kelantan was estimated at 1.86 million as of 2023 (13). The state has 11 districts and 10 government hospitals, with four hospitals offering paediatric services. The hospitals which were selected for this study were Hospital Universiti Sains Malaysia, Kubang Kerian, a teaching hospital and the only hospital in the state with Paediatric Haematology and Oncology Unit, Hospital Raja Perempuan Zainab II, Kota Bharu which is the state government hospital in Kelantan and Hospital Sultan Ismail Petra, Kuala Krai, the main hospital for South Kelantan Cluster (14). These hospitals were chosen as they were the main referral hospitals in the region and the best to represent the population of the state.

Study population

This study involved paediatric patients aged less than 13 years old admitted to the paediatric wards or seen at Paediatric Clinic with the diagnosis of ITP. The age limit was chosen as new case patients of above 12 years old were referred to the adult medicine rather than to the paediatric team thus management may differ. Exclusion criteria were secondary thrombocytopenia, incomplete records, or follow-up <6 months. Out of the total 88 eligible cases, two case were excluded due to incomplete medical records or follow-up data, resulting in 86 patients being included in the final analysis.

Operational definition was based on International Working Group for Standardization of Terminology, Definition and Outcome Criteria in ITP 2009 (16) as follows:

Outcome of ITP

Acute/newly diagnosed ITP is defined as platelet count of $<100\times10^9$/L in the absence of other causes or disorders that may be associated with thrombocytopenia up till three months, while chronic ITP is when platelet count of $<100\times10^9$/L lasted more than 12 months (16).

Severity of bleeding

Mild bleeding is when the sites were either cutaneous and/or mucosal bleeding. Moderate is when the mucosal bleeding is more than one site and severe is defined as presence of bleeding symptoms at presentation sufficient to mandate treatment, or occurrence of new bleeding symptoms requiring additional therapeutic intervention with a different platelet-enhancing agent or an increased dose (16).

Response to treatment

Complete response (CR) is when the platelet count is greater than 100 x109/L and in the absence of bleeding, response (R) is an increase in the platelet count to greater than 30 x109/L and at least 2-fold increase the baseline count in the absence of bleeding while no response (NR) is when platelet count < 30 × 109/L or less than 2-fold increase of baseline platelet count or bleeding (16).

Management

Observation-only management was applied to children with mild bleeding symptoms and stable platelet counts, defined as $>20\text{x}10^9$/L without progressive decline. Patients with persistently $<10\text{x}10^9$/L were excluded from observation-only management regardless of symptoms.

Study Ethics

The study was approved by the Human Research Ethics Committee [USM/JEPeM/KK/23060444] and Medical Research and Ethics Committee [NMRR ID-23-03155-UC7 (IIR)].

Statistical Analysis

All statistical analyses were performed using IBM SPSS

Statistics version 28.0. Descriptive statistics summarised patient characteristics, treatment, and outcomes. Continuous variables were expressed as mean ± standard deviation or median (interquartile range), and categorical variables as frequency and percentages.

Univariable logistic regression was applied to identify potential predictors of chronic ITP. Variables with $p < 0.25$ and those with clinical significance were then entered into multiple logistic regression models. The adjusted odds ratio (aOR) with 95% confidence interval (CI) and corresponding p-values were reported. Model performance was evaluated using the Hosmer-Lemeshow goodness-of-fit test and area under the receiver operating characteristic (ROC) curve.

RESULTS

A total of 86 paediatric patients diagnosed with ITP were included in this study. The cohort comprised 50 males and 36 females, with a male-to-female ratio of 1.4 to 1. The majority of patients were of Malay ethnicity, reflecting the demographic distribution of the study region. The mean age at diagnosis was 4.7 years (SD 3.2), with most patients being toddlers and preschool-aged children. The age group was categorized into <1 year old to represent the infant group, 1-6 years old for the toddlers and preschool age and 7-13 years old for the school going age (Table I).

The most common clinical presentation was mild bleeding, reported in 44.1% of cases. These included petechiae, bruises, and minor mucosal bleeding. Moderate bleeding was observed in 39.5% of patients, often involving multiple mucosal sites such as epistaxis or oral bleeding. Severe bleeding requiring urgent intervention occurred in 16.3% of cases. Notably, two patients presented with intracranial haemorrhage, highlighting the potential severity of the condition despite its typically benign course.

Antecedent illnesses, predominantly upper respiratory tract infections, acute gastroenteritis, and other viral syndromes, were reported in 41 of the 86 cases (47.6%). Four patients (4.7%) had received routine vaccinations (MMR or Pentaxim) within six weeks prior to symptom onset. Seasonal distribution did not show any consistent peak or trend, suggesting no specific environmental triggers.

Initial platelet counts ranged from 0 to 95 × 10^9/L, with a mean of 14× 10^9/L (Table II). Platelet morphology was evaluated, and giant or large platelets were observed in 34.9% of patients. These morphological findings were more frequent among patients with chronic ITP. Other haematological indices such as haemoglobin and white blood cell counts were within normal range

Table I: Demographic profile, clinical presentation, antecedent of preceding infection, recent immunization and month of diagnosis for acute and chronic ITP (n=86).

Variables	All, n=86	Acute ITP, n=59	Chronic ITP, n=27
Age at diagnosis (in years old), mean (SD)	4.5 (3.2)	4.0 (3.1)	5.6 (3.3)
<1	14 (16.3)	13 (22)	1 (3.7)
1-6	50 (58.1)	35 (59.3)	15 (55.6)
7-13	22 (25.6)	11 (18.6)	11 (40.7)
Gender, n (%)			
Male	52 (60.5)	37 (62.7)	15 (55.6)
Female	34 (39.5)	22 (37.3)	12 (44.4)
Severity of bleeding, n (%)			
Mild	39 (45.3)	32 (54.2)	7 (25.9)
Moderate	34 (39.5)	21 (35.6)	13 (48.1)
Severe	2 (2.4)	0 (0)	2 (7.5)
Others (asymptomatic/ incidental)	11 (12.8)	6 (10.2)	5 (18.5)
Underlying medical illness, n (%)			
No	70 (81.4)	51 (86.4)	19 (70.4)
Yes	16 (18.6)	8 (13.6)	8 (29.6)
Antecedent of preceding infection, n (%)			
No	45 (51.1)	29 (64.4)	16 (35.6)
Yes	41 (47.6)	30 (73.1)	11 (26.9)
Recent immunisation, n (%)			
No	82 (95.3)	55 (93.2)	27 (100.0)
Yes	4 (4.7)	4 (6.8)	
Months of diagnosis, n (%)			
Nov - Jan	25 (29.1)	15 (25.4)	10 (37.0)
Feb - Apr	23 (26.7)	16 (27.1)	7 (25.9)
May - July	19 (22.1)	14 (23.7)	5 (18.5)
Aug - Oct	19 (22.1)	14 (23.7)	5 (18.5)

Table II: Descriptive statistics of laboratory data in acute and chronic ITP patients

Characteristic	All n=86	Acute ITP n=59	Chronic ITP n=27
Platelet count (x10^9/L) at diagnosis, mean (SD)	17.2 (22.1)	15.2 (20.9)	21.5 (24.2)
Hemoglobin level (g/dL) at diagnosis, mean (SD)	11.3 (1.9)	11.4 (1.6)	11.1 (2.3)
Giant/large platelet in FBP, n (%)			
No	39 (45.3)	30 (50.8)	9 (33.3)
Yes	47 (54.7)	29 (49.2)	18 (66.7)
Infective markers, n (%)			
CRP negative	73 (84.9)	52 (71.2)	21 (28.8)
CRP positive	13 (15.1)	7 (53.8)	6 (46.2)
BMA, n (%)			
No	75 (87.2)	57 (96.6)	18 (66.7)
Yes	11 (12.8)	2 (3.3)	9 (33.3)

Notes: Platelet count and hemoglobin level at diagnosis were expressed in mean (SD). Other parameters i.e. presence of giant/large platelet in FBP, infective markers, and BMA were expressed in n (%). FBP = Full blood picture. CRP = C-reactive protein. ESR = Erythrocyte Sedimentation Rate. BMA = Bone marrow analysis.

in most patients, supporting the diagnosis of isolated thrombocytopenia. Inflammatory markers (CRP, ESR) were generally unremarkable.

Bone marrow aspiration (BMA) was performed in 11 patients (12.8%), primarily in those with persistent or chronic ITP or those with atypical features at presentation. Findings were consistent with peripheral platelet destruction and increased megakaryocytes, excluding other haematological pathologies.

Regarding treatment, 71 patients (82.6%) received active therapy during the acute phase (Table III). The most common initial treatment was intravenous immunoglobulin (IVIg), administered in 60 patients (84.5% of those treated), followed by corticosteroids in 26 patients (36.6%). A combination of therapies such as IVIg and prednisolone or IVIg, prednisolone and other agents like Rhogam (n=3) and one each for methylprednisolone, Rituximab, Eltrombopag olamine and Azathioprine was used in select cases with severe bleeding or slow recovery. Observation alone was applied in 15 patients (17.4%), primarily those with mild symptoms and stable platelet counts, defined as >20 $\times 10^9$/L without progressive decline. Patients with persistently <10 $\times 10^9$/L were excluded from observation-only management regardless of symptoms as per departmental practice.

Among the 86 patients, 59 (68.6%) had resolution of thrombocytopenia within six months, while 27 (31.4%) developed chronic ITP. Of those with chronic ITP, 14 (51.9%) achieved complete response, six (22.2%) achieved response, and seven (25.9%) remained non-responders despite multiple lines of therapy. Treatment for chronic ITP included repeated courses of corticosteroids, IVIg, and, in selected cases, thrombopoietin receptor agonists or immunosuppressants.

Table III: Descriptive statistics of management outcome

Characteristics	All n=86	Acute ITP n=59	Chronic ITP n=27
Blood product transfusion, n (%)			
No	55 (64.0)	40 (67.8)	15 (55.6)
Yes	31 (36.0)	19 (32.2)	12 (44.4)
Platelet only	25 (29.1)	15 (25.4)	10 (37)
Packed cells only	1 (1.2)	1 (1.7)	0
Platelet + pack cells	4 (4.7)	2 (3.4)	2 (7.4)
FFP	1 (1.1)	1 (1.7)	0
Treatment, n (%)			
No	17 (19.8)	13 (22.0)	4 (14.8)
Yes	69 (80.2)	46 (78.0)	23 (85.2)
Prednisolone only	2 (2.3)	1 (1.7)	1 (3.7)
IVIg only	51 (59.3)	40 (67.8)	11 (40.7)
Prednisolone + IVIg	7 (8.1)	3 (5.0)	4 (14.8)
Prednisolone + IVIg + others	9 (10.5)	2 (22.2)	7 (77.8)

Notes: FFP = Fresh Frozen Plasma, IVIg = Intravenous Immunoglobulin.

Simple logistic regression analysis identified several variables associated with progression to chronic ITP, including age at diagnosis, severity of bleeding, initial platelet count, presence of giant platelets, history of BMA, and need for blood product transfusion (Table IV). Variables with $p < 0.25$ were entered into the multiple logistic regression model (Table V). The presence of giant platelets (aOR 4.8; 95% CI 1.3–17.2; $p = 0.019$) and having undergone BMA (aOR 5.7; 95% CI 1.4–22.8; $p = 0.014$) were independently associated with chronic ITP.

Model performance was assessed using the Hosmer-Lemeshow goodness-of-fit test and ROC curve analysis. The Hosmer-Lemeshow test yielded a p-value greater than 0.05, indicating a good fit between predicted and observed outcomes. The ROC analysis showed an area under the curve (AUC) of 0.847, suggesting good discriminative ability of the logistic regression model in predicting progression to chronic ITP. Figure 1 illustrates the ROC curve of the final model.

DISCUSSION

This study presents one of the most comprehensive analyses of paediatric ITP in the northern East Coast of Malaysia, contributing valuable insights into local trends and outcomes. The male predominance (1.4:1) observed in our cohort is consistent with global studies. For instance, the ICIS study (10) reported a male-to-female ratio of 1.2:1, while studies in India and Saudi Arabia had shown similar patterns (19, 20). This suggests a potential biological or reporting bias influencing ITP diagnosis in boys.

The mean age at diagnosis was 4.7 years, in line with findings from developed and developing countries alike. A Korean study by Jae HL in 2021 showed that ITP is prevalent in children aged 2–5 years (39). A study from Canada by Bolton-Maggs et al. showed peak incidence in the 2–5-year age group (32). This supports the notion that younger children are at greater risk, possibly due to their frequent exposure to infections that may trigger autoimmune platelet destruction and the relatively weaker immune system compared to the older group.

In terms of clinical presentation, most patients had mild bleeding, with only two experiencing intracranial haemorrhage. In a Turkey study in 2021, there were four patients who developed intracranial haemorrhages out of 503 children (21). This aligns with a large retrospective US study where less than 3% of children presented with severe bleeding. The low incidence of life-threatening bleeding reinforces the practice of conservative management in selected patients.

Antecedent infections were identified in nearly half of the patients, similar to findings from Kuala Lumpur and Hong Kong studies where viral triggers preceded ITP in up to 60% of cases (26, 27). The association with

Table IV: Simple Logistic Regression Model for factors associated with chronic ITP in paediatric patients (n=86)

Variables	Regression coefficient (b)	Crude OR (95% CI)	Wald statistics	p-value
Age (in years)				
< 1	0.0	1.0		
1-6	1.72	5.57 (0.67, 46.5)	2.51	0.11
7-13	2.56	13.0 (1.44, 117.2)	5.23	0.02
Gender				
Female	0.0	1.0		
Male	-0.3	0.74 (0.29, 1.89)	0.4	0.53
Month of diagnosis				
Feb-Apr	0.00	1.00		
May-July	-0.20	0.82 (0.20, 3.15)		
Aug-Oct	-0.20	0.82 (0.2, 3.15)		
Nov-Jan	0.42	1.52 (0.46, 5.2)		
Underlying medical illness				
No	0.00	1.00		
Yes	0.99	2.68 (0.87, 8.32)	3.03	0.08
Antecedent of precedent infection				
No	0.00	1.00		
Yes	-0.48	0.62 (0.24, 1.55)	1.03	0.31
Severity of bleeding				
Mild	-1.04	0.35 (0.12, 1.01)	3.62	0.06
Moderate	0.00	1.00		
Severe	0.00	1.00		
Others	0.63	1.88 (0.52, 7.09)	0.93	0.34
Platelet count at diagnosis ($x10^9$/L)	0.01	1.01 (0.99, 1.03)	1.44	0.23
Haemoglobin level at diagnosis (g/dL)	-0.08	0.92 (0.71, 1.19)	0.38	0.54
Infective markers				
CRP positive	0.11	1.11 (0.32, 3.54)	0.03	0.86
CRP negative	0.00	1.00		
Giant/large platelets in FBP				
No	0.00	1.00		
Yes	0.73	2.07 (0.82, 5.53)	2.25	0.13
BMA				
No	0.00	1.00		
Yes	2.66	14.3 (2.82, 72.10)	10.32	0.001
Treatment				
No	0.00	1.00		
Yes	0.49	1.63 (0.48, 5.55)	0.60	0.44
Blood product transfusion				
No	0.00	1.00		
Yes	0.52	1.68 (0.66, 4.31)	1.19	0.28

Notes: OR = Odds Ratio, CI = Confidence Interval, CRP = C-reactive protein. ESR = Erythrocyte Sedimentation Rate. BMA = Bone marrow analysis.

Table V: Multiple logistic regression of factors associated with chronic ITP in paediatric patient (n=86)

Variables	Adjusted OR (95% CI)	Wald (df)	p-value
Severity of bleeding			
Mild	0.20 (0.05, 0.81)	5.07 (1)	0.02
Moderate	-	-	
Others	1.61 (0.36, 7.28)	0.39 (1)	0.54
Giant/large platelet in FBP			
No			
Yes	4.85 (1.22, 19.25)	5.04 (1)	0.03
BMA			
No			
Yes	54.01 (6.57, 444.01)	13.7 (1)	<0.001

Notes:
[a]Others referred to incidental findings of low platelet or asymptomatic patients. OR = odd ratio, CI = confidence interval. FBP = Full blood picture, BMA = Bone Marrow Aspiration. Backward LR Multiple Logistic Regression model was applied. Multicollinearity and interaction term were checked and not found. Model fitness was evaluated using Hosmer-Lemeshow test – p value > 0.05, Classification table > 70% (81.4%), area under the receiver operating characteristic (ROC) curve > 70% (84.7%). All indicate a good fit.

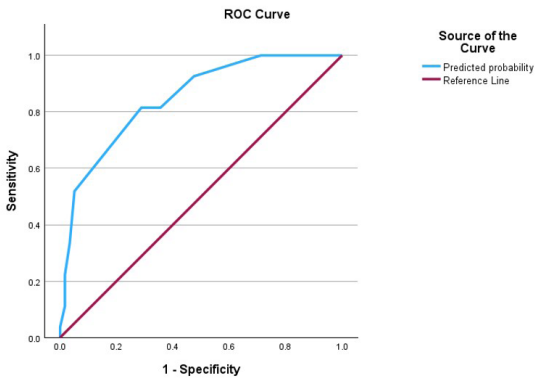

Figure 1: Receiver Operating Characteristic (ROC) curve for the logistic regression model predicting chronic ITP. The AUC is 0.847, indicating good model performance

vaccination was rare in our study, and this mirrors recent global reviews confirming that ITP following immunisation is exceedingly uncommon.

Therapeutic approaches varied, with IVIg being the most frequently used first-line treatment. This differs from UK practices where corticosteroids are often the initial therapy due to cost constraints. Our finding may reflect accessibility to government-subsidised IVIg and preference for its rapid platelet response in acute ITP. Notably, 17.4% of patients were managed conservatively without active pharmacologic treatment, a trend increasingly supported by newer international guidelines advocating watchful waiting in mild cases.

The chronicity rate in this study was 31.4%, comparable to global estimates ranging between 20% and 30%. However, this rate is slightly higher than reported by the ICIS registry (20%) and other studies in China (23%) (32). Differences may stem from variations in referral

bias, follow-up duration, or thresholds for defining chronicity.

A significant finding in this study was the strong association between the presence of giant platelets and chronic ITP, a finding consistent with research by Rosthɯj et al. in 2005 who also identified platelet morphology as a prognostic marker (38). Additionally, bone marrow aspiration was an independent predictor of chronicity, possibly reflecting clinical concern for atypical presentations prompting further investigation.

From a diagnostic standpoint, the selective use of bone marrow aspiration (BMA) in only 12.8% of patients suggests adherence to international recommendations, reserving this invasive test for atypical or refractory cases. This aligns with American Society of Hematology (ASH) guidelines and reflects prudent use of healthcare resources.

To further strengthen our findings, we evaluated the performance of the logistic regression model used to identify predictors of chronic ITP. The model demonstrated good discriminative ability, with an area under the ROC curve (AUC) of 0.847—indicating strong classification performance. The Hosmer-Lemeshow test yielded a p-value greater than 0.05, suggesting good calibration between observed and predicted outcomes. These statistical indicators support the reliability of the identified predictors, particularly the presence of giant platelets, in forecasting chronicity.

In terms of treatment outcomes, more than half of chronic ITP patients achieved complete response, indicating favourable prognosis even in prolonged disease. The application of combination therapies and use of second-line agents such as TPO-RAs reflect growing sophistication in local ITP management.

This study adds significant value to existing literature by providing a decade-long perspective on paediatric ITP in a Malaysian setting, highlighting practice patterns and outcomes that can inform national guidelines. It also underscores the need for local prognostic models tailored to our patient population, particularly in predicting chronic disease.

This study is limited by its retrospective cross-sectional design, which may be subject to selection bias and missing data inherent in retrospective record reviews. We relied mostly on existing medical records, which may have introduced information bias. Some patient records were incomplete or unavailable due to natural disasters such as floods that affected hospital archives. Despite multicentre, the sample size is still relatively small. Additionally, the exclusion of adolescents aged 13 years and above may limit the generalisability of findings to the full paediatric population. The absence of long-term follow-up data beyond the study period also restricts conclusions on sustained remission and relapse rates.

Future research should involve multi-centre prospective studies that encompass a broader age range and longer follow-up duration. Establishing a national registry for paediatric ITP would enhance surveillance and facilitate uniform data reporting. Updated Malaysian clinical practice guidelines for ITP should incorporate local epidemiological trends and predictive markers, such as giant platelets. Furthermore, educational initiatives are warranted to standardise management and minimise unwarranted interventions such as unnecessary bone marrow aspirations.

CONCLUSION

In summary, this 10-year retrospective cross-sectional study highlights the clinical characteristics, treatment patterns, and outcomes of paediatric immune thrombocytopenia in Kelantan, Malaysia. The majority of patients presented with mild symptoms and achieved spontaneous remission. However, a significant proportion progressed to chronic ITP, with factors such as giant platelet morphology and history of bone marrow aspiration independently predicting chronicity. The favourable response to treatment in chronic cases is encouraging and supports the continued use of multi-agent therapy guided by clinical severity. These findings provide crucial local data that may inform national guidelines and improve early risk stratification for children with ITP.

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