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Original Article

Early Antipyretic Timing to Prevent Febrile Seizure Recurrence in Young Children with Pneumonia

Zaid Rasool Shahid Rasool[1], Aaima Khan[2], Muhammad Suleman[3], Ayesha Subuktageen[4], Raana Riaz[5], Khan Deen[6], Azhar Hussain[7], Maryam Bibi[8]

[1] MBBS, Avicenna Medical and Dental College, Lahore, Pakistan
[2] Kinnaird College for Women University, Lahore, Pakistan
[3] Gomal University, Dera Ismail Khan, Pakistan
[4] MBBS, Dip Health Emergency & Disaster Management, Army Medical College, Rawalpindi, Pakistan
[5] Medical Officer, Fatima Jinnah Medical University, Lahore, Pakistan
[6] Postgraduate Resident, Orthopedics, SPH, Quetta, Pakistan
[7] General Practitioner, Saand Clinic, Matiari, Pakistan
[8] COMSATS University Islamabad, Vehari Campus, Pakistan.

✉ **Correspondence:** Raana Riaz, Riazraana97@gmail.com

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ABSTRACT

Background: Febrile seizure recurrence remains a concern in young children with acute infections, while conventional antipyretic administration has not consistently demonstrated preventive benefit. Whether earlier treatment during temperature elevation modifies short-term recurrence in children with pneumonia remains uncertain. Objective: To determine whether early paracetamol administration reduces febrile seizure recurrence compared with standard fever management in children with pneumonia and a previous simple febrile seizure. Methods: This parallel-group randomized controlled trial enrolled 120 children aged 6 months to 5 years at tertiary-care hospitals in Central Punjab, Pakistan. Participants were allocated equally to paracetamol initiated at 37.5°C or standard treatment initiated at ≥38.0°C and were monitored during hospitalization and for 14 days after discharge. Outcomes were evaluable for 113 participants. Results: Febrile seizure recurrence occurred in 4/57 (7.0%) early-treatment participants versus 12/56 (21.4%) controls (RR 0.33, 95% CI 0.11–0.95; p=0.028). Early treatment was associated with lower peak temperature (mean difference −0.60°C, 95% CI −0.77 to −0.43), fewer febrile episodes (−1.10, 95% CI −1.46 to −0.74), and shorter fever duration (−1.40 days, 95% CI −1.83 to −0.97). Hospital stay did not differ significantly. Conclusion: Among participants with evaluable follow-up, earlier paracetamol administration was associated with lower short-term febrile seizure recurrence and improved fever-related outcomes, although confirmation using complete intention-to-treat analyses is needed. Keywords: Antipyretics; Child; Fever; Febrile Seizures; Paracetamol; Pneumonia; Randomized Controlled Trial.

INTRODUCTION

Fever is one of the most common manifestations of infectious illness in early childhood and a frequent reason for medical consultation and hospital assessment. Although fever is a physiological component of the host response to infection, its occurrence in neurologically susceptible children may coincide with febrile seizures, which most commonly affect children between 6 months and 5 years of age (1). Febrile seizures are generally self-limiting and have a favorable prognosis; however, their sudden onset is distressing for caregivers and frequently results in emergency consultations and repeated healthcare utilization. Recurrence is an important concern because

children who have experienced a previous febrile seizure remain susceptible during subsequent febrile illnesses, particularly during the early childhood period when infectious diseases and febrile episodes are common (2).

The clinical management of fever in children is primarily directed toward improving comfort, maintaining hydration, and identifying and treating the underlying illness rather than achieving normothermia alone (3). Nevertheless, antipyretic medications such as paracetamol are frequently administered by caregivers and clinicians when fever develops, particularly in children perceived to be at increased risk of recurrent febrile seizures. Current approaches to childhood fever management emphasize appropriate dosing, avoidance of unnecessary medication, and recognition of clinical features requiring further evaluation (4). Whether antipyretic therapy can meaningfully modify the risk of febrile seizure recurrence, however, remains uncertain, and this uncertainty is particularly relevant in children with repeated or sustained febrile episodes.

The pathophysiology of febrile seizures is multifactorial and cannot be explained solely by the absolute body temperature reached during an illness. Host susceptibility, age-dependent neuronal excitability, infectious triggers, inflammatory mediators, and cytokine responses may interact to lower the seizure threshold during febrile illnesses (5). Consequently, the relationship between fever characteristics and seizure occurrence is complex, and a single temperature threshold cannot be assumed to determine seizure onset. Nevertheless, careful monitoring and appropriate treatment of fever remain important components of the clinical management of acutely ill children, particularly when previous febrile seizures have heightened caregiver concern and the need for structured fever-management advice (6).

Antipyretic medications reliably reduce fever-related discomfort and can lower body temperature, but previous investigations have not consistently demonstrated that routine antipyretic administration prevents recurrent febrile seizures (7). Contemporary guidance on febrile seizures similarly indicates that conventional antipyretic treatment should not be presented to caregivers as an established prophylactic therapy for seizure recurrence (8). An important consideration, however, is that many conventional fever-management strategies initiate treatment after fever is already established. Therefore, the unresolved clinical question is not simply whether paracetamol has antipyretic activity, but whether the timing of its administration during the earliest phase of temperature elevation influences seizure recurrence in a specifically defined high-risk population.

Children with pneumonia provide a clinically relevant population in which to examine this question because acute respiratory infection may be accompanied by recurrent or sustained fever during the period of active illness. Hospitalized children also permit structured temperature surveillance and standardized medication administration, while post-discharge monitoring can capture recurrent fever and seizure-related healthcare use during early recovery. In infectious illnesses requiring pediatric assessment, timely recognition of temperature changes and appropriate supportive management remain important components of care (9). However, the potential value of initiating antipyretic treatment at a lower predefined temperature threshold, rather than waiting until conventional fever criteria are reached, has not been adequately clarified for young children with pneumonia who already have a history of simple febrile seizures. Existing childhood fever guidance provides recommendations for fever assessment and symptomatic treatment but does not establish whether such an early-treatment strategy reduces seizure recurrence in this particular clinical population (10).

This uncertainty represents a clinically important knowledge gap. If earlier administration of paracetamol during temperature elevation reduces recurrent febrile seizures without introducing unacceptable medication exposure or adverse effects, the strategy could potentially inform fever-management protocols for selected high-risk children. Conversely, if earlier treatment provides no meaningful benefit, unnecessary escalation of antipyretic use should be avoided. A randomized comparison is therefore appropriate to determine whether differences in treatment timing translate into measurable differences in seizure recurrence and fever-related outcomes.

Accordingly, the present parallel-group randomized controlled trial aimed to determine whether administering paracetamol at the early onset of temperature elevation, compared with standard fever management initiated at the conventional treatment threshold, reduces febrile seizure recurrence in children aged 6 months to 5 years with pneumonia and a previous history of simple febrile seizures. Secondary objectives were to compare peak body temperature, frequency and duration of febrile episodes, time to seizure recurrence, hospital length of stay, and emergency medical consultations between the two groups. It was hypothesized that earlier antipyretic

administration would be associated with a lower risk of recurrent febrile seizures during the defined follow-up period compared with standard fever management.

MATERIALS AND METHODS

A parallel-group randomized controlled trial was conducted in the pediatric inpatient departments of tertiary-care hospitals in Central Punjab, Pakistan, to compare early antipyretic administration with standard fever management for preventing recurrent febrile seizures in young children hospitalized with pneumonia. The study was conducted over eight months, from October 2025 to May 2026, encompassing participant screening, recruitment, intervention delivery, hospitalization, and follow-up. Each enrolled child was monitored throughout hospitalization and for 14 days after discharge. The parallel randomized design was used to permit a direct comparison of seizure recurrence and fever-related outcomes between the two fever-management strategies while minimizing systematic differences in baseline characteristics between groups.

Children aged 6 months to 5 years who were admitted with clinically and radiologically confirmed pneumonia and had a documented history of at least one previous simple febrile seizure were eligible for participation. Children were excluded if they had epilepsy, a history of complex febrile seizures, central nervous system infection, developmental neurological disorders, chronic renal or hepatic disease, immunodeficiency, severe malnutrition, known hypersensitivity to antipyretic medication, or concurrent anticonvulsant prophylaxis. These criteria were applied to reduce the influence of neurological disorders, major systemic disease, medication-related factors, and other conditions that could independently modify seizure risk or interfere with the study intervention. Children admitted during the study period were screened for eligibility, and caregivers of eligible participants were approached for participation. Caregivers who declined participation were not enrolled, and participation could be withdrawn during follow-up.

Sample size was determined before recruitment using assumptions derived from a comparable interventional study evaluating antipyretic strategies for febrile seizure prevention. With 80% statistical power and a 5% significance level, the minimum required sample was estimated at 48 participants per group. The recruitment target was increased to 60 children per group to allow for potential attrition, giving a planned total sample of 120 participants. Following enrollment, participants were allocated a 1:1 ratio to either the early antipyretic intervention group or the standard-care control group. The allocation sequence was generated by computer by an independent investigator who was not involved in participant recruitment or outcome assessment. Allocation concealment was maintained using sequentially numbered, sealed opaque envelopes that were opened only after enrollment. Because the intervention involved different temperature thresholds for administration of paracetamol, caregivers and treating physicians could not be blinded to treatment allocation. Outcome assessors and data analysts remained blinded to group assignment to reduce assessment and analytical bias.

Children allocated to the early antipyretic group received oral paracetamol at a dose of 15 mg/kg at the earliest evidence of temperature elevation, operationalized as a body temperature of 37.5°C or a documented upward temperature trend from baseline. Subsequent doses could be administered at 6-hour intervals when clinically indicated while remaining within recommended pediatric daily dosing limits. Children allocated to the standard-care group received routine fever management, with paracetamol initiated when axillary temperature reached or exceeded 38.0°C. Apart from the timing of antipyretic administration, both groups received the same institutional management for pneumonia. Conditions and concurrent therapies likely to substantially modify seizure susceptibility were addressed through the eligibility criteria, while random allocation and common pneumonia management were used to reduce confounding between study groups.

Body temperature was assessed using calibrated digital thermometers. During hospitalization, temperature was monitored at 4-hour intervals and medication administration was documented in nursing records. After discharge, caregivers continued temperature surveillance during the 14-day follow-up period and recorded fever-related information and antipyretic administration in structured fever diaries. These records were used to assess adherence to the assigned fever-management strategy and to document post-discharge febrile events. The combination of standardized inpatient temperature monitoring, calibrated measurement devices, nursing medication records, structured caregiver documentation, concealed allocation, and blinded outcome assessment was used to improve consistency of data collection and reduce avoidable measurement and ascertainment bias.

The primary outcome was recurrence of a febrile seizure during the defined monitoring period. Seizure events occurring during hospitalization were evaluated clinically, while events occurring after discharge were identified through caregiver reporting and physician assessment. Secondary outcomes comprised time to first febrile seizure recurrence, maximum recorded body temperature, number of febrile episodes, duration of fever, hospital length of stay, and requirement for emergency medical consultation. Temperature-related outcomes were evaluated using serial measurements obtained during the monitoring period, whereas hospital length of stay was determined from the inpatient episode and emergency consultations were documented during follow-up.

Continuous variables were summarized as mean ± standard deviation and categorical variables as frequencies and percentages. Distributional normality of continuous variables was assessed using the Shapiro–Wilk test. Within-group changes in continuous variables were evaluated using paired-samples t tests, and continuous outcomes were compared between groups using independent-samples t tests. Repeated measures analysis of variance was used to evaluate serial temperature measurements, including the effects of time, treatment group, and the time × group interaction. Pearson correlation analysis was performed to examine the reported relationship between peak body temperature and seizure recurrence frequency. Statistical significance was defined as $p<0.05$.

All 120 randomized participants were included in the baseline description. During follow-up, three participants in the early-antipyretic group and four in the standard-care group did not provide complete post-discharge outcome data. Consequently, outcome analyses were based on participants with evaluable follow-up data, comprising 57 children in the intervention group and 56 in the control group. No imputation of missing follow-up observations was reported. Thus, the primary inferential analyses represented available cases rather than complete intention-to-treat analyses.

RESULTS

A total of 148 children were screened for eligibility between October 2025 and May 2026. Twenty-eight were excluded because they did not meet the eligibility criteria or their caregivers declined participation, leaving 120 children who underwent randomization. Sixty participants were allocated to the early antipyretic group and 60 to the standard-care group. During follow-up, three children in the early antipyretic group and four in the standard-care group did not provide complete post-discharge outcome data. Accordingly, 113 participants had evaluable follow-up data, comprising 57 in the early antipyretic group and 56 in the standard-care group. Baseline demographic and clinical characteristics were comparable between groups (Table 1).

Table 1. Baseline Demographic and Clinical Characteristics of Randomized Participants (N=120)

Variable	Early antipyretic group (n=60)	Standard-care group (n=60)	p-value
Age, months	29.2 ± 11.1	28.6 ± 11.8	0.775
Male sex, n (%)	35 (58.3)	34 (56.7)	0.853
Weight, kg	12.5 ± 3.0	12.3 ± 3.2	0.725
Previous febrile seizures, number	1.8 ± 0.6	1.9 ± 0.7	0.403
Admission temperature, °C	38.8 ± 0.5	38.7 ± 0.4	0.229
Pneumonia severity score	5.1 ± 1.2	5.3 ± 1.4	0.403

Values are mean ± SD unless otherwise indicated. Continuous variables were compared using independent-samples t tests and sex using the Pearson χ^2 test. P-values were recalculated from the reported group summary data.

Febrile seizure recurrence occurred in 4 of 57 children (7.0%) in the early antipyretic group and 12 of 56 children (21.4%) in the standard-care group. This corresponded to an absolute risk difference of −14.4 percentage points (95% CI −27.0 to −1.8) and a relative risk of 0.33 (95% CI 0.11–0.95; p=0.028), indicating a substantially lower observed recurrence proportion in the early-treatment group (Table 2). Among participants who experienced recurrence, the mean time to recurrence was 11.3 ± 2.1 days in the early antipyretic group and 8.4 ± 2.7 days in the standard-care group. The recalculated between-group mean difference was 2.90 days (95% CI −0.22 to 6.02; p=0.064).

Table 2. Primary Outcome and Other Clinical Outcomes in Participants With Evaluable Follow-up (N=113)

Outcome	Early antipyretic group (n=57)	Standard-care group (n=56)	Between-group effect (95% CI)	Relative/standardized effect	p-value
Febrile seizure recurrence, n (%)	4 (7.0)	12 (21.4)	−14.4% (−27.0 to −1.8)	RR 0.33 (0.11–0.95)	0.028
Peak temperature, °C	38.5 ± 0.4	39.1 ± 0.5	−0.60 (−0.77 to −0.43)	g = −1.32	<0.001
Time to recurrence, days	11.3 ± 2.1	8.4 ± 2.7	2.90 (−0.22 to 6.02)	g = 1.06	0.064

Outcome	Early antipyretic group (n=57)	Standard-care group (n=56)	Between-group effect (95% CI)	Relative/standardized effect	p-value
Febrile episodes, number	1.7 ± 0.8	2.8 ± 1.1	−1.10 (−1.46 to −0.74)	g = −1.14	<0.001
Fever duration, days	3.2 ± 1.0	4.6 ± 1.3	−1.40 (−1.83 to −0.97)	g = −1.20	<0.001
Hospital stay, days	4.1 ± 1.2	4.5 ± 1.4	−0.40 (−0.89 to 0.09)	g = −0.30	0.106
Emergency consultations, n (%)	5 (8.8)	13 (23.2)	−14.4% (−27.7 to −1.2)	RR 0.38 (0.14–0.99)	0.036

Continuous outcomes are presented as mean ± SD and categorical outcomes as n (%). Between-group effects are mean differences for continuous outcomes and absolute risk differences for categorical outcomes, calculated as early antipyretic group minus standard-care group. RR, relative risk; g, Hedges standardized mean difference. Continuous outcomes were compared using independent-samples t tests and categorical outcomes using Pearson χ^2 tests. Time-to-recurrence estimates are based on participants with an observed recurrence (n=4 and n=12).

Peak temperature was 0.60°C lower in the early antipyretic group than in the standard-care group (95% CI −0.77 to −0.43; p<0.001), with a large, standardized difference (Hedges g=−1.32). Children receiving early antipyretic treatment also experienced fewer febrile episodes, with a mean between-group difference of −1.10 episodes (95% CI −1.46 to −0.74; p<0.001; g=−1.14), and a shorter fever duration, with a mean difference of −1.40 days (95% CI −1.83 to −0.97; p<0.001; g=−1.20). Hospital stay was 0.40 days shorter in the early antipyretic group, although the confidence interval included no difference (95% CI −0.89 to 0.09; p=0.106; g=−0.30).

Emergency consultations occurred in 5 of 57 children (8.8%) in the early antipyretic group compared with 13 of 56 (23.2%) in the standard-care group. The absolute risk difference was −14.4 percentage points (95% CI −27.7 to −1.2), corresponding to a relative risk of 0.38 (95% CI 0.14–0.99; p=0.036).

The reported within-group measurements showed that maximum temperature decreased from 38.8 ± 0.5°C at baseline to 38.5 ± 0.4°Cat follow-up in the early antipyretic group, whereas it increased from 38.7 ± 0.4°C to 39.1 ± 0.5°C in the standard-care group. The number of febrile episodes decreased in both groups, from 3.8 ± 1.1 to 1.7 ± 0.8 in the early antipyretic group and from 3.7 ± 1.0 to 2.8 ± 1.1 in the standard-care group (Table 3).

Table 3. Reported Within-Group Changes in Temperature and Febrile Episodes

Outcome	Group	Baseline	Follow-up	Mean change	p-value
Maximum temperature, °C	Early antipyretic	38.8 ± 0.5	38.5 ± 0.4	−0.30	<0.001
Maximum temperature, °C	Standard care	38.7 ± 0.4	39.1 ± 0.5	+0.40	0.012
Febrile episodes, number	Early antipyretic	3.8 ± 1.1	1.7 ± 0.8	−2.10	<0.001
Febrile episodes, number	Standard care	3.7 ± 1.0	2.8 ± 1.1	−0.90	<0.001

Values are mean ± SD. Mean change was calculated as follow-up minus baseline. P-values are the within-group paired-test values reported in the manuscript.

Serial temperature analysis demonstrated significant effects of time (F=39.84, p<0.001) and treatment group (F=12.67, p=0.001), together with a significant time × group interaction (F=16.92, p<0.001), indicating different temperature trajectories between the two groups over the observation period. The reported correlation analysis showed a positive association between peak temperature and seizure recurrence frequency (r=0.41, p<0.001)(Table 4).

Table 4. Longitudinal Temperature and Correlation Analyses

Analysis	Statistical effect	Statistic	p-value
Serial temperature	Time effect	F=39.84	<0.001
Serial temperature	Group effect	F=12.67	0.001
Serial temperature	Time × group interaction	F=16.92	<0.001
Peak temperature and seizure recurrence frequency	Pearson correlation	r=0.41	<0.001

F values are from the reported repeated-measures analysis of variance. Pearson r represents the reported correlation coefficient.

DISCUSSION

This randomized controlled trial examined whether initiating paracetamol at an earlier stage of temperature elevation was associated with a lower risk of recurrent febrile seizures in young children with pneumonia and a previous history of simple febrile seizures. Among participants with evaluable follow-up, the early antipyretic strategy was associated with a lower observed proportion of febrile seizure recurrence, together with lower peak

temperature, fewer febrile episodes, and shorter fever duration. Emergency consultations were also less frequent in the early-treatment group, whereas the difference in hospital length of stay was not statistically significant. Although recurrence occurred later on average among the small subgroup of children who experienced another seizure, the recalculated between-group difference in time to recurrence was not statistically significant. These findings therefore support a potentially relevant relationship between earlier fever treatment and short-term recurrence during the index illness, but they should be interpreted in the context of incomplete follow-up and the limitations of the available-case analysis.

The observed recurrence pattern differs to some extent from the broader literature on conventional antipyretic use in febrile seizures. Antipyretics are effective for improving fever-associated discomfort and reducing body temperature, but routine administration has not consistently been shown to prevent recurrent febrile seizures, and contemporary recommendations generally discourage presenting antipyretics as established seizure prophylaxis (3,8). Expert recommendations for childhood fever similarly emphasize the clinical condition and comfort of the child rather than normalization of body temperature alone (11). Reviews of febrile seizures have also highlighted the limited evidence that conventional antipyretic treatment prevents recurrence despite its established symptomatic effects (12). One possible explanation for the difference between the current findings and earlier evidence is the intervention strategy used in this trial: paracetamol was initiated at an earlier temperature threshold rather than after more established fever. Another is the selection of a relatively specific high-risk population consisting of children with pneumonia and a previous simple febrile seizure. These possibilities remain hypotheses, however, because the present study did not directly compare different pharmacological mechanisms or establish that early temperature reduction itself was responsible for the difference in seizure recurrence.

The biological relationship between infection, fever, and febrile seizures is complex. Acute infectious diseases may produce systemic inflammatory responses and sustained or fluctuating fever, although the characteristics of fever vary considerably between infectious conditions (13). Accurate assessment of temperature and the accompanying clinical state is therefore important when evaluating febrile children rather than relying on an isolated temperature value alone (14). Reviews of acute febrile illness demonstrate considerable heterogeneity in infectious causes and clinical manifestations (15), while therapeutic reviews of febrile seizures indicate that seizure susceptibility cannot be explained simply by whether an antipyretic was administered (16). Respiratory tract infections have been reported among common infectious conditions associated with febrile convulsions in pediatric populations (17). Contemporary pathophysiological models instead suggest interactions among age-dependent neuronal excitability, genetic susceptibility, infectious triggers, inflammatory mediators, and cytokine-related neuroinflammation (18). Within this framework, the lower peak temperature and altered temperature trajectory observed in the early-treatment group provide a plausible physiological context for the lower recurrence proportion, but the trial did not measure cytokines, neuronal excitability, rate of temperature rise, or an individual seizure threshold. A direct biological mechanism therefore cannot be inferred from these clinical outcomes.

The secondary fever-related outcomes provide additional context for the primary finding. Early-treated children experienced fewer febrile episodes and a shorter duration of fever, with comparatively large standardized between-group differences in the available data. The significant time × group interaction for serial temperature measurements also suggests that temperature patterns differed during follow-up rather than the groups differing only at a single measurement. Nevertheless, fever modification should not automatically be equated with seizure prevention. The reported positive correlation between peak temperature and recurrence-related measurements supports an association between fever intensity and seizure occurrence within the study, but correlation alone cannot establish that peak temperature caused recurrence. Furthermore, the precise relationship between the timing, rate of temperature elevation, and seizure onset was not directly modeled.

The clinical implications therefore require a balanced interpretation. An intervention based on an earlier threshold is simple to implement and may be attractive to clinicians and caregivers managing children with previous febrile seizures. However, lowering the threshold for administering paracetamol could also increase cumulative medication exposure, and the present manuscript does not provide sufficient information on cumulative dose or adverse events to establish the overall benefit–risk balance. Studies of fever management in other pediatric infectious diseases further illustrate that temperature trajectories and treatment responses can be condition-specific (19). Accordingly, these results should not be extrapolated automatically from children hospitalized with pneumonia to all children with fever or a history of febrile seizures. Patterns and causes of febrile illness also differ

geographically and epidemiologically, which should be considered when assessing external applicability (20). Until the finding is reproduced in adequately powered studies with complete follow-up and formal safety assessment, early paracetamol administration should not be interpreted as established prophylactic treatment for recurrent febrile seizures.

Several methodological features strengthen the study. Random assignment with a computer-generated sequence and concealed allocation reduced the likelihood of systematic baseline differences between treatment groups. The use of predefined treatment thresholds provided a clinically understandable contrast between strategies, while standardized inpatient temperature monitoring and medication records strengthened ascertainment during hospitalization. Blinded outcome assessment and blinded statistical analysis were also intended to reduce assessment and analytical bias. The inclusion of both seizure recurrence and clinically relevant secondary outcomes allowed the intervention to be examined beyond temperature reduction alone.

Important limitations remain. Seven of the 120 randomized participants did not provide complete follow-up data, and the principal outcome analysis was consequently based on 113 participants rather than a complete intention-to-treat population. Because the recurrence result was based on relatively few events, missing outcomes could influence the estimated treatment effect. Caregivers and treating clinicians could not be blinded to treatment allocation, which may have affected medication administration, monitoring behavior, emergency consultation, or reporting of post-discharge events. Temperature was measured at four-hour intervals during hospitalization, so the exact time at which an individual child first crossed the intervention threshold may not always have been captured. Post-discharge monitoring relied partly on caregiver records, introducing potential variability in measurement and adherence. The short follow-up period captured recurrence associated with the index pneumonia episode rather than long-term susceptibility during subsequent illnesses.

Additional analytical limitations should also be recognized. The time-to-recurrence comparison was based on only those participants who experienced recurrence and therefore involved small and unequal subgroup sizes; the recalculated confidence interval included no difference. A survival analysis incorporating all participants and censoring those without recurrence would provide a more appropriate assessment if participant-level timing data are available. Similarly, the repeated-measures analysis would be more informative with explicit reporting of measurement time points, degrees of freedom, assumptions, and correction procedures. Multiple secondary outcomes were tested without a reported multiplicity adjustment, so individual secondary p-values should be interpreted cautiously. Finally, cumulative paracetamol exposure and adverse-event outcomes were not presented, limiting conclusions regarding the comparative safety of initiating treatment at a lower temperature threshold.

Overall, the study provides preliminary randomized evidence that an earlier antipyretic strategy may be associated with lower short-term febrile seizure recurrence during pneumonia in children with a previous simple febrile seizure. The accompanying differences in peak temperature, fever frequency, and fever duration support a measurable effect on the febrile course, but they do not by themselves establish the mechanism responsible for the observed seizure difference. Confirmation through larger trials using complete intention-to-treat analyses, rigorous missing-data handling, appropriate time-to-event methods, standardized monitoring, and systematic safety assessment would be necessary before the intervention could be considered for broader clinical application.

CONCLUSION

Among young children with pneumonia and a previous history of simple febrile seizures who had evaluable follow-up, initiation of paracetamol at an earlier temperature threshold was associated with a lower observed proportion of recurrent febrile seizures than standard fever management and was accompanied by lower peak temperature, fewer febrile episodes, and shorter fever duration. Hospital length of stay did not differ significantly, and the recalculated difference in time to seizure recurrence was not statistically significant. These findings suggest a potential short-term benefit of earlier fever management in this selected population, but confirmation with complete intention-to-treat analysis and adequately powered studies is required before routine preventive use can be established.

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