

Letter to Editor

## Unexpected Hypothermia Following Ibuprofen

Man-Soi Lo<sup>1\*</sup>, Lee Yan<sup>2</sup> and Jorge Sales Marques<sup>2</sup>

<sup>1</sup>Pharmacy Department, Centro Hospitalar Conde S. Januário – Macau - China

<sup>2</sup>Pediatric and Neonatology Department, Centro Hospitalar Conde S. Januário – Macau - China

### Summary

A 3-year-old girl was diagnosed to have hypothermia with rectal temperature at 34°C. Following the warm blanket and towels for half hour; the girl's temperature was soon gradually raised to normal ear temperature of 36 °C. The girl showed no sign of sepsis or severe infection that led to hypothermia. All analyses were normal. Six hours before, she took oral ibuprofen for high ear temperature of 39.6°C. In our index case, it seemed that hypothermia was caused by ibuprofen. Although is rare, in the literature, ibuprofen was already reported in a few cases that it may be responsible for hypothermia.

### Background

Hypothermia is defined as a body temperature below 35 °C [1]. It is an emergency situation that needs to address immediately unless it is medically induced and used in special situations such as hypothermia for certain head injuries [1]. The unexpected hypothermia following ibuprofen use in this case was an extremely rare adverse drug reaction which alerts us about the use of antipyretic drugs.

### Case Presentation

A three year and four month old girl with good past health was brought to Pediatric emergency room ( Ped ER) for finding cool limbs and pallor on the face. Temperature cannot be measured by ear at home nor at Ped ER. Only 34°C of rectal temperature was obtained. On arrival, the girl was fully conscious and alert, without any sign of severe infection or sepsis. Blood pressure was normal, without signs of tachycardia or tachypnea. On examination, her appearance did not look pale or very ill except a little bit tired. No dehydration sign was noted. Physical exam was unremarkable except the finding of cool limbs. Her blood test results showed normal parameter of liver, renal function and complete blood count. Viral test was performed with nasopharyngeal swab, later yielded positive in the human metapneumo virus RNA (RT-PCR). Besides of taking single dose of oral ibuprofen 80mg (~6mg/kg/dose) six hours before the admission because of high fever (39.5°C). No other complaint. The girl was brought to the private doctor a few days ago because of fever and coryza symptom. Amoxicillin and clavulanic acid syrup and antihistamine was prescribed at that

time, but do not seem to be related to hypothermia.

In order to raise her body temperature after admission, warm blankets and towels were used. After half hour, her body temperature was slowly raised up to 36 °C (Figure1). She was discharged after keeping on observation for two more days, and did not show any fever or complications noticed. It seemed that hypothermia was caused by ibuprofen. Ibuprofen peaks at 1 to 2 hours after ingestion and has its action for 6 to 8 hours despite its short half-life [2, 3].

### Discussion

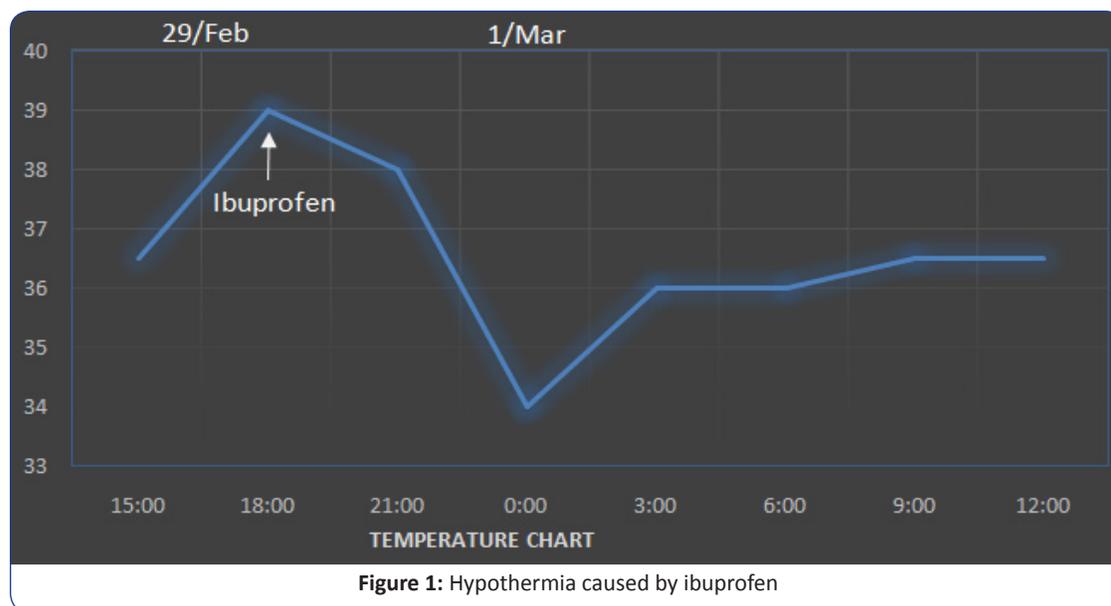
Antipyretics are commonly prescribed for fever [4]. Acetaminophen and ibuprofen are the mostly widely used due to their safety profile and good efficacy [4]. By inhibiting cyclooxygenase-1 and 2 enzymes which decrease prostaglandin E2 formation within hypothalamus, ibuprofen effectively suppressed fever [3]. However, they are not without risks. This case confirmed an adverse drug effect of hypothermia caused by ibuprofen based on the Naranjo ADR Probability Scale [5]. Although it was rare, ibuprofen was already reported in a few cases that it may be responsible for hypothermia [6, 7]. In the future, particularly in this case, we need to take care and advise the parents of the possibility to repeat this side effect. Hypothermia caused by ibuprofen was only noticed in some overdose patients and it is not commonly seen [7, 8]. It is not known which patient is vulnerable or over-reacted to the pharmacologic effect of ibuprofen. Therefore, we should still pay more attention about the use of ibuprofen and beware of the potential side effect of hypothermia.

**\*Corresponding author:** Man-Soi Lo, Pharmacy Department, Centro Hospitalar Conde S. Januário – Macau – China; E-mail: sandylawkimo@yahoo.com.tw

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