

Adequate dose of Ketamine dose for pediatric sedation

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Objective: Sedation for children undergoing diagnostic imaging tests outside the operating room has been performed in paediatric sedation and anaesthesia units (PSAUs). This study aimed to determine the independent predictor and to reason out the optimal dose of ketamine dose required for the induction of sedation in pediatric patients for diagnostic test such as CT or MRI.

Methods: This prospective observational study included children aged 0–18 years who were sedated in the PSAU between January 2011 and August 2016 at a tertiary medical centre. We recorded patient characteristics, categories of imaging tests, administered sedatives, adverse events, and respiratory interventions for sedation. Medical records of patients younger than 18years who received ketamine for procedural sedation were evaluated. Data collected included patient demographics, procedure type, ketamine doses administered, duration for sedation and adverse effects. Factors predictive of ketamine induction dose were analyzed using linear regression analyses.

Results: 66 patients were included in the final analyses. The mean age was 3.6months and 62.1% were male. (Table1). In the univariate linear regression analyses, patient age, height, BSA were predictors of the induction dose. (Table2, figure 1,2). In multivariate linear regression, age, height, BSA had multicollinearity, We can't put together a variable in one model at all. So age and height, age and weight, age and BSA were analyzed in different three models. Of three models, we chose the model with highest adjusted R square value and suggested the equation for the optimal dose of ketamine dose required for the induction of sedation considering age, BSA . ($-1.62 + 0.7 \cdot \text{age} + 36.36 \cdot \text{BSA}$, adjusted R square = 0.658)

Conclusions: In pediatric ketamine-based sedation, the variable like that age, height, BSA should be taken into account when estimating induction dose of ketamine.

Key Words: procedural sedation, ketamine, hospital

Table 1. Demographic characteristics of patients.

Sex (male/female)	41/25
Age (months)	3.6 ± 5.3
Height (cm)	54.6 ± 10.7
Weight (kg)	4.8 ± 2.6
Procedure type(%)	
CT	24(36.3%)
MRI	42 (63.7%)
CT + MRI	0
Anes time (min)	21.7 ± 12.1

Table 2. Univariate linear regression

Variable	dependent variable	
	Keta_Induction (n=66)	
	β (SE)	p-value
Age(months)	1.336 (0.128)	<0.001
Height(cm)	0.646 (0.066)	<0.001
Weight(kg)	2.657 (0.272)	<0.001
BSA	71.409 (6.991)	<0.001

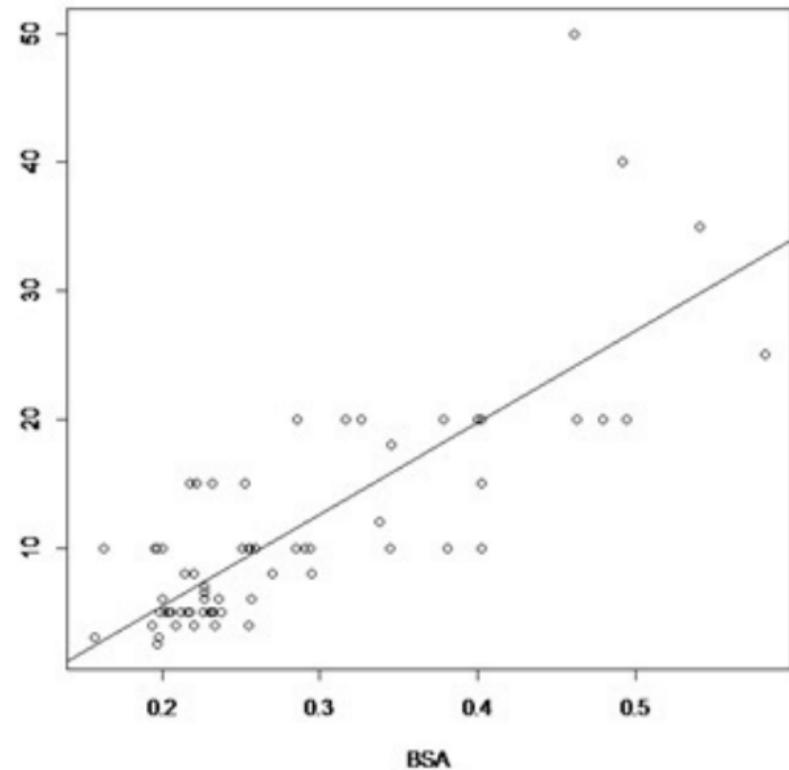


figure 1. ketemine induction dose and BSA

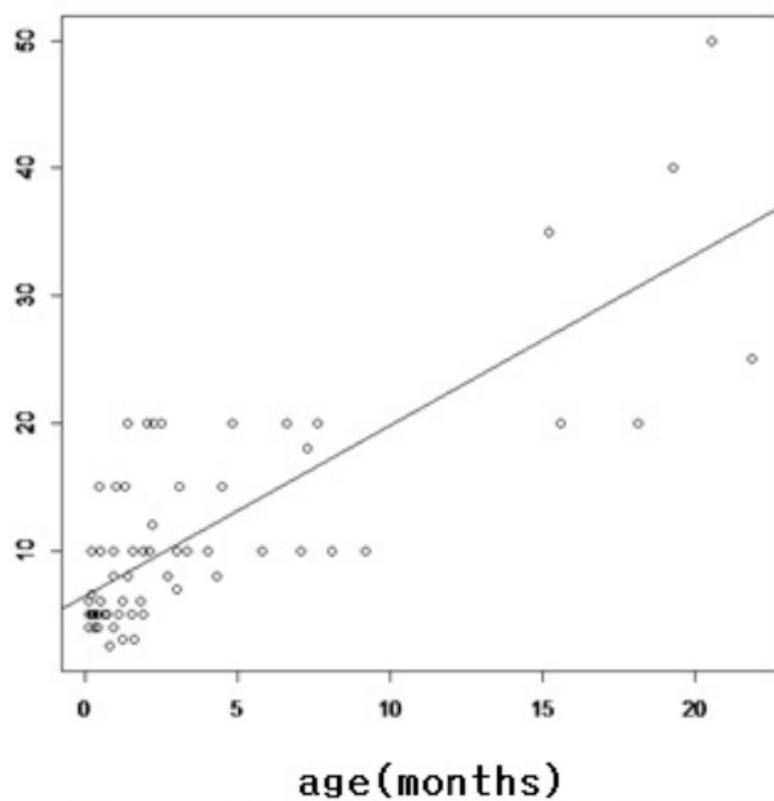


figure 2. ketemine induction dose and age