

'Raw' Formula for Calculating Maintenance Fluid Volumes in Low Birth-Weight and Premature Babies Derived

Type of Article: Abstract

Dr. Nwate Ledisi

Braithwaite Memorial Specialist Hospital Port Harcourt, Rivers State,

BACKGROUND

Hitherto only Tables existed for estimating Maintenance Fluid volume requirements in Low Birth-Weight and Premature Babies.

OBJECTIVE

This work presents a Formula, derived by the author, which can be used for such calculations in this category of babies

METHODS

One of the most developed Tables on this subject matter, "Pediatric Surgical Unit Guidelines, Sheffield Children's Hospital was selected, subjected to analysis and reconstituted until the Formula was derived.

RESULTS

This formula, $20\{(R+A)-W\}$, ml kg⁻¹ day⁻¹ was derived from the table. This translates to $0.8(R+A-W)$ ml⁻¹ kg⁻¹ Hr⁻¹. Where: R = Rehydration factor. [R= 5 for Liberal & 4 to 1 for Restricted Regimens], A = the age (in days) of the baby, W = premature baby's actual weight.

The proposed formula was validated for its accuracy by reconstructing a table (vide infra), using the derived formula and compared with the original table. A paired sample T- test, using variation in days and in weights, did not show any statistically significant (p<0.05) difference between the two tables.

CONCLUSION

The derived formula is recommended for calculating maintenance fluid volumes in premature and Low Birth weight babies.

Keywords: Formula; Premature Babies; Maintenance Fluid; Volume Calculation.

Correspondence: Dr. NwateLedisi

Email: ledisimed@yahoo.com,

REFERENCES

1. CM Wilson. Sheffield children's Hospital, preoperative fluids In Children. Update in Anesthesia issue 19(2005). Article 14:
2. Oh T H. formulas for calculating fluid maintenance requirements. Anesthesiology. 1980.53; 351

TABLE 1 VALUES GOT USING THE FORMULA

Weight (Kg) / Age (Days)	0 – 1.0 Kg	1.1 - 1.5Kg	1.6 -2.0kg	> 2.0 kg [3.0-4.0 Kg]
Fluid requirement	ml/kg/day			
Day 1	120-100	98-90	<u>88 -80</u>	60-40
Day 2	140-120	118-110	108-100	80-60
Day 3	160-140	[138-130]	128-120	100-80
Day 4	[180-160]	[158-150]	148-140	120-100
Day 5	200-180	178-170	168-160	140-120