

ASSOCIATION BETWEEN ORAL SOLUTION OF 24% SUCROSE AND PROCEDURAL PAIN BY PRETERM INFANTS



M. Mandžo¹, B. Alihodžić-Dilberović¹, S. Terzić², B. Begović³.
mubera.mandzo@kcus.ba



¹University Clinical Center Sarajevo, Clinical Pharmacy, ²University Clinical Center Sarajevo, Pediatric Clinic, ³University Clinical Center Sarajevo, Pharmacology, Sarajevo, Bosnia - Herzegovina.

BACKGROUND

Acute pain is one of the most common adverse stimuli experienced by preterm infants. Those infants undergoing painful procedures in the neonatal intensive care unit (NICU) need help to have their pain reduced. 24% oral sucrose solution is a mild analgesic which is effective in decreasing short-term pain and distress during minor procedures such as heelstick and venipuncture.

PURPOSE

The aim of the study was to prove efficacy of 24% oral sucrose solution as pain relief in preterm infants undergoing painful procedure.

RESULTS

MedCalc version 12.6.1.0 statistical software was used. There were no statistically significant differences between groups A and B with regard to the following variables: gender ($p=0.96$), gestational age ($p=0.062$), birth weight ($p=0.78$), using the Mann-Whitney test. No statistically significant differences were found in oxygen saturation levels (GA $p < 0.0001$ and GB $p < 0.0001$) and respiratory rates (GA $p=0.019$ and GB $p=0.055$) inside the same group before and after procedures or between the groups.

MATERIAL AND METHODS

The sample comprised 58 preterm and low birth weight neonates who were hospitalized in the NICU of Pediatric Clinic. The neonates received 0.5 ml 24% oral sucrose. Sucrose solution was prepared in our Clinical Pharmacy. The sample was divided into two groups: group A (GA) of 29 preterm infants, 25 to 32 weeks gestational age, birth weight from 950 to 1670 grams who received oral sucrose directly into the mouth 2 min before the painful procedures and group B (GB) of 29 preterm infants, 28 to 33 weeks gestational age, birth weight from 1300 to 1730 grams who received pacifier dipped in the same amount of sucrose. The parameters that we observed were pulse, oxygen saturation and respiration before and after the procedure.

	GA_puls_1	GA_puls_2
Sample size	29	29
Arithmetic mean	138.4828	143.4828
95% CI for the mean	131.6091 to 145.3564	135.5281 to 151.4374
Variance	326.5443	437.3300
Standard deviation	18.0705	20.9124
Standard error of the mean	3.3556	3.8833

Paired samples t-test

Mean difference	5.0000
Standard deviation	9.3159
95% CI	1.4564 to 8.5436
Test statistic t	2.890
Degrees of Freedom (DF)	28
Two-tailed probability	P = 0.0074

	GB_puls_1	GB_puls_2
Sample size	29	29
Arithmetic mean	133.6552	139.2759
95% CI for the mean	129.1760 to 138.1343	134.2946 to 144.2571
Variance	138.6626	171.4926
Standard deviation	11.7755	13.0955
Standard error of the mean	2.1867	2.4318

Paired samples t-test

Mean difference	5.6207
Standard deviation	6.4443
95% CI	3.1694 to 8.0720
Test statistic t	4.697
Degrees of Freedom (DF)	28
Two-tailed probability	P = 0.0001

Only difference was with regard to the pulse (GA $p=0.0074$ and GB $p=0.0001$) which can be explained with smaller sample

CONCLUSION

Study has demonstrated that the administration 24% oral sucrose solution is effective as a simple and safe method of pain relief for preterm infants during painful procedures from single events such as heelstick and venipuncture.