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Research Article

IMPACT OF ORAL GLUCOSE ON REDUCTION OF PAIN IN NEONATES

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Abstract:

Objective: If the newborns have to face extreme pain stimulus of pain for long duration, it can increase the rate of morbidity. Neonates who faced pain in the duration of neonatal period, will react irregularly to the pain in the duration of next events full of pain. Among new births and young infants who have faced painful surgery of minor nature, a safe way to analgesia is the utilization of the oral sucrose. The aim of this research work is to assess the impact of oral glucose on the decrease of pain among newborns.

Methodology: All the neonates having age from two to ten days and having weight of greater than 2500 gram who got admission for phototherapy & bilirubin and they were not in range of exchange, were the part of his research work. This research work was carried out in pediatric department of Mayo Hospital, Lahore. Total 108 neonates were the part of this research work. The feeding of every neonate carried out with the help of syringe after every thirty minutes with 2 milliliters distilled water, D/W 10.0%, D/W 20.0%, D/W 50.0% on the forward tongue portion. Straightaway, injecting of a lancet carried out into the neonate heel & alterations of the complexions of face and changes in crying recorded for complete 3 minutes after the injection. Wong standard was in use for the evaluation of the alteration in face & crying. This research work was a quasi-experimental type study & method of Fischer exact test was in use for the analysis of the collected information.

Results: From total one hundred and eight newborns who got feeding with D/W 10.0%, D/W 20.0% and D/W 50.0%; 0.90% (n: 1), 28.0% (n: 41), 93.50% (n: 101) & 98.10% (n: 106) displayed the less sensation to pain correspondingly.

Conclusion: The findings of this research work showed that glucose through oral way is very secure analgesic agent & there is high recommendation of its utilization in the pediatric ward before the application of the painful method to neonates. Very high concentration of glucose will decrease the severity of pain with more effectiveness

Key Words: Newborn, Distilled, Pediatric, Fischer, Milliliters, Methodology, Glucose, Oral, Analgesic Agent, Phototherapy.

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INTRODUCTION:

If there is exposure to pain of severe nature or stimulus of pain for a long duration, it may be a reason of high rate of morbidity among neonates [1, 2]. The infants who faced the pain in the duration of the neonatal period, will react discontinuously to the severity of pain in the duration of next painful incidences [3, 4]. The alterations in the activity of face, shifts in period of sleep, walking state & indices of physiology of the rate of heart & saturation of oxygen are the most important indicators of pain among neonates having more than twenty weeks' age of gestation [5, 6]. If the neonates or young infants who have to face the painful surgery of minor nature, analgesia will be a pure & secure outcome of the oral sucrose. This research work aimed to assess the impact of the oral glucose on the decreases of the painful events among neonates to reduce their suffering.

METHODOLOGY:

All the neonates having age from two to ten days and having weight of greater than twenty-five hundred grams who got admission in the pediatric department in the Mayo Hospital Lahore for phototherapy & bilirubin and all these neonates were not in exchange range were the part of this research work. There were total one hundred and eight neonates were the part of

this research work. Ethical committee of the hospital gave the permission to conduct this research work. Parents of the neonates gave the verbal consent to ensure their participation in the research work. Syringe was in use to feed every neonate after each thirty minutes with two milliliters of distilled water, D/W 10.0%, D/W 20.0%, D/W 50.0% on the frontal tongue portion. Immediately, injecting of a lancet carried out in the neonate's heel & we recorded the alterations in the complexion of face and changes in crying after 3 minutes of injection.

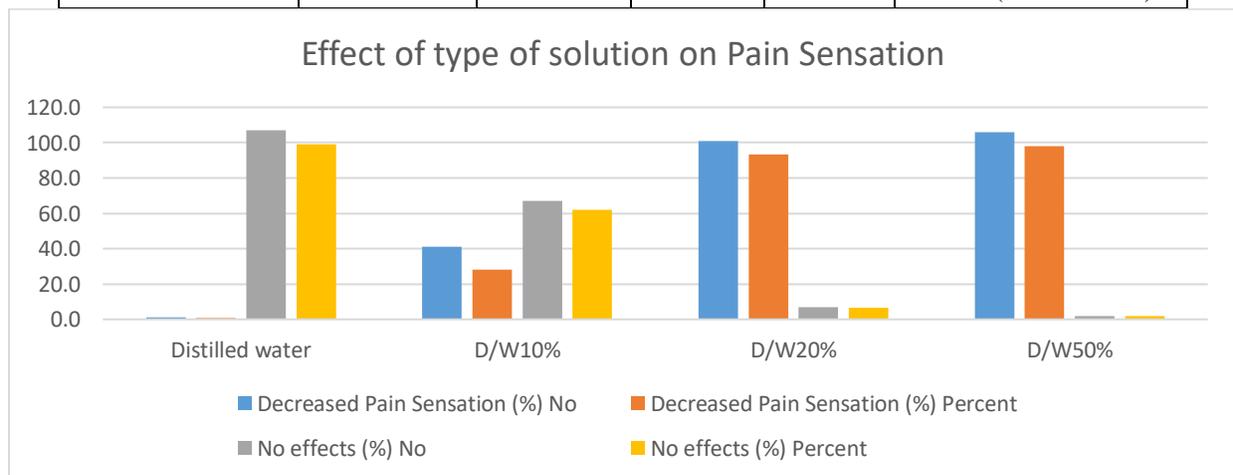
The prescribed standard of Wong was in utilization for the evaluation of the alterations in the complexion of faces & changes in the crying [7]. This research work was a quasi-experimental research work & method of Fischer exact test was in use for the analysis of the collected information.

RESULTS:

There were total one hundred and eight newborns were the part of this research work, they were under feeding with utilization off distilled water, D/W 10.0%, D/W 20.0% & D/W 50.0%; .90% (n: 1), 28.0% (n: 41), 93.50% (n: 101) & 98.0% (n: 106) displayed the less sensation of the pain respectively as available in Table-1.

Table-I: Effect of type of Solution on the Pain Sensation

Type of Solution	Decreased Pain Sensation		No effects (%)		Odds ratio (95%)
	No	Percent	No	Percent	
Distilled water	1.0	0.90	107.0	99.10	-
D/W10%	41.0	28.00	67.0	62.00	1.60 (1.380-1.850)
D/W20%	101.0	93.50	7.0	6.50	15.30 (7.50-31.30)
D/W50%	106.0	98.10	2.0	1.90	53.50 (13.50-211.20)



DISCUSSION:

In few researches works with newborns of young PCA (Postconceptional Age) & with the newborn having birth very close to the term, the activity of the face complexion & measurement of the rate of heart were available with moderate relation. In the newborns with an average postconceptional age from twenty-eight to twenty-nine weeks, Johnston stated an association of $r = 0.550$ between action of face of brow bulge & highest rate of heart in the duration of heel stick & $r = 0.360$ between the brow bulge & standard deviation of the rate of heart [8]. There is very significant indication that the utilization of the oral sucrose has the ability to reduce the severity of pain which is the result of the discharge of the endogenous opioid. Ramenghi evaluated the impact of the oral sucrose in the decrease of the severity of pain among infants with pre-maturity. He studied the fifteen neonates having the age from thirty-two to thirty-four weeks of gestation age. He detected the important decrease in the rate of crying as well as the total duration of crying five minutes after the injection through syringe [9]. Skogsdal concluded that one milliliter of 30.0% glucose meaningfully decreased the sensation of the severity of pain. In opposition to this, 10.0% glucose & milk from breast has very small or no impact on pain sensation [10]. Bauer examined treatment through oral sugar for the reduction of pain among premature as well as mature newborns. Two milliliters of (25.0% glucose, 30.0% glucose) decreased the sensation of pain & crying and caused decrease in the increased rate of heart after sampling of blood from venous & capillary vessels [11].

In a research work conducted by Kass FC, the comparison of the impact of the oral glucose with the DPNB (dorsal penis nerve block) to reduce the severe sensation of pain in the process of circumcision which is compulsory in Muslim customs as well as it has many medical advantages. The findings of this research work displayed that the solution of the oral glucose solution cannot be in use as an alternative of dorsal penis nerve block for the decrease in the sensation of the pain, increase in the frequency of the heart rate [12]. Abad F in his research work reported that the solution of the oral sucrose (24.0%) can perform its role as a secure and cheap or very economical agents it was very much comparable with the EMLA to decrease the sensation of the pain because of sampling of blood [13]. Various kinds of sampling of blood in the pediatric ward can lead the newborns as well as their infants towards agitation.

CONCLUSION:

In the current research work, the results conclude that the solutions of the glucose are very cheap & cost

effective procedures for the reduction in the sensation of the pain prior to the sampling of blood in the pediatric department. There is strong recommendation of the solution of glucose prior to the painful methods as a substance to analgesia. Very high concentration of glucose will decrease the severity of pain with more effectiveness.

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