Summary

Vascular endothelial growth factor (VEGF) is a polypeptide growth factor that's activated by tissue hypoxia. In current study we measured VEGF in patients with HIE aiming to investigate its value as a marker for the severity of asphyxial brain insult and in the clinical progress during neonatal period then follow up done at age of 3 months and 6 months to evaluate neurodevelopmental outcomes. The current study was conducted on 20 full term hypoxic neonates recruited from NICU El-Mansoura General Hospital with 60%males ,40%females ,mean GA 38.8±.768, mean BW 3.33±0.122, 50% of them delivered by C.S and 50% delivered by vaginal delivery. The study also included 20 full term healthy neonates as control group with age and sex matched. Each case was subjected to the following:

1. Full maternal and obstetric history taking.
2. Thorough clinical examination and assessment of GA by new Ballard score.
3. Apgar score at 1 and 5 minutes and resuscitation data
4. Laboratory investigation:
    a. CBC.
    b. CRP.
    c. ABG. .
    d. Kidney functions.

e. VEGF, samples were taken from cord blood or within 1st 24 hours.

It was found that VEGF levels were significantly higher in patients group compared to control group. No effect of gender or mode of delivery on VEGF levels was found.

VEGF showed a significant difference between patients with different grades of HIE.

VEGF levels showed significant difference between patients with different Apgar scores at 1 and 5 minutes being the highest in those with lowest Apgar scores.

Patients with meconium stained amniotic fluid showed significantly higher VEGF levels than those with clear amniotic fluid.

Follow up was done at age of 3 months and 6 months to asses neurodevelopment of cases and we found that from 20 babies, 14 (70%) showed normal growth and development, 3 (15%) showed neurodevelopmental handicap and 3 (15%) died in neonatal period.

Conclusion

From the present study we conclude that VEGF is up regulated in neonates with hypoxic ischemic encephalopathy. Neither sex nor mode of delivery affects VEGF.

The increase is VEGF in HIE patients is apparently related to severity and timing of asphyxial insult being the highest with lowest apgar and in utero hypoxia.

Recommendations

Based on the results of the current study we recommend the following:

1. Further studies on a larger scale are recommended to clarify the exact role of VEGF in pathogenesis of HIE to detect whether it a cause or a result of hypoxia.

2. Further studies to investigate the role of VEGF, other anti-VEGF agents in protection against hypoxic ischemic brain injury.

3. Correlation of VEGF immediately after birth with long-term neurodevelopmental outcomes needs to be addressed.