Section: General Surgery

Original Research Article

DILATION AND EVACUATION: AN UNSKILLED INTERVENTION, A SURGICAL HAZARD

Eesha Ashok[1], Anil Kumar Kamal[2], Kumar Gaurav[3], Samir Toppo[4], Krishan Kumar[5], Deepak Kumar[1], Ranjana Mondal[1]

[1]Junior Resident, Department of General Surgery, RIMS, Ranchi, Jharkhand, India
[2]Associate Professor, Department of General Surgery, RIMS, Ranchi, Jharkhand, India
[3]Assistant Professor, Department of General Surgery, RIMS, Ranchi, Jharkhand, India
[4]Associate Professor, Department of General Surgery, RIMS, Ranchi, Jharkhand, India
[5]Senior Resident, Department of General Surgery, RIMS, Ranchi, Jharkhand, India

Received : 07/01/2024
Received in revised form : 12/03/2024
Accepted : 31/03/2024

Keywords:
Early intervention, socio demographic profile, developmental delay profile.

Corresponding Author:
Dr. Eesha Ashok,
Email: eesha.ashok20@gmail.com

DOI: 10.47009/jamp.2024.6.2.195

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2024; 6 (2); 956-960

Abstract

Background: Early intervention program[EIP] aims at early detection and management of children with disabilities like birth defects, developmental delays, deficiencies, neurodevelopmental disorders etc. These causes contribute to significant childhood morbidity and mortality. Assessment of the socio demographic and clinical profile of such children attending EIP would help us to identify the risk factors and provide intervention at the earliest to improve the overall quality of life. **Materials and Methods:** Data containing sociodemographic and clinical details of children who had attended EIP from January 2017 to December 2019 at niloufer hospital in hyderabad is collected from record database in child psychiatry opd and entered into semi structured intake proforma. The data obtained is analysed statistically. **Result:** 58.4%(n=723)were males and 41.5%(n=515) were females across all the three years from 2017 to 2019. 43.2%(n= 535) of children were between 1 to 2 years. 99.43%(n=1231) of the children received ante natal care. Most common risk factor associated in the antenatal period was anemia13.6%(n=169). 31.17%(n=386) of children had birth asphyxia,23.66%(n=293) had low birth weight, 20.27%(n=251) had neonatal jaundice, 19.22%(n=238) children had neonatal seizures during perinatal period. 80.85%(n=1001) of children had developmental delay and 6.70%(n=83) had cerebral palsy. 25.36%(n=314) of children were found to have mild developmental delay in DQ. **Conclusion:** Identification of risk factors associated with childhood disabilities would help to address them and prevent the disabilities or provide intervention at the earliest to minimize the disability adjusted life years and improve the quality of life.

INTRODUCTION

Early intervention program [EIP] aims at early detection and management of children with disabilities like birth defects, intellectual disability, nutritional deficiencies, chromosomal abnormalities, metabolic disorders, neurodevelopmental disorders etc. All these causes may lead to developmental delay. These causes contribute to significant childhood morbidity and mortality. Such children if left unattended are deprived of normal social life, education and cannot lead an independent life depending on the degree of disability. There could be many risk factors leading to development of these disabilities. Though the core cause may not be reversible, the overall quality of life of these children can be improved through early intervention and rehabilitation. Because early stimulation of the central nervous system in the first 3yrs of life induces proper brain plasticity which in turn helps the child to achieve the highest functional level possible in all the motor, cognitive, sensory, linguistic and social domains and improves the quality of life. Hence, it is important to identify the clinical and sociodemographic risk factors associated in order to enhance and modify future interventions and guide family support and awareness. Hence this study aims at Assessment of the socio demographic and clinical profile of such children attending Early intervention program.

Aim: To study the socio demographic and clinical profile of children with developmental delay attending early intervention program at a tertiary care centre.

Objectives

1. To study the socio demographic profile of children with developmental delay
2. To study the risk factors associated with developmental delay
3. To study the degree of disability in the children.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

4. To study the comorbid conditions associated with developmental delay

MATERIALS AND METHODS

This is a retrospective analysis of record database of socio demographic details of children attending early intervention program at Niloufer hospital, Hyderabad. After obtaining approval from institutional ethics committee and administrative authorities of Niloufer hospital data containing sociodemographic and clinical details of children who had attended EIP from January 2017 to December 2019 is collected from record database in child psychiatry opd and entered into semi structured intake proforma. Details regarding age, gender, domicile, ante natal care, type of delivery, maternal risk factors, perinatal risk factors, diagnoses and DQ were taken and entered into the intake proforma. The data obtained is analysed statistically using SPSS software version 22. Descriptive statistics were used.

RESULTS

A total of 1238 new cases were registered under early intervention program at niloufer hospital from January 2017 to December 2019 out of which 58.4%(n=723) were males and 41.5%(n=515) were females across all the three years from 2017 to 2019 as depicted in table 1 and figure 1. 43.2% (n= 535) of children were between 1 to 2 years of age which formed the majority, whereas 38.6%(n=479) of children were of 0 to 1yr of age, 14.9%(n=185) were of 2 to 3yrs of age and 3.1%(n=39) were of 3 to 4 yrs of age as depicted in table 1 and figure 2. 85.9%(n=1064) of mothers were aged between 20 to 30 years, 10.0%(n=125) were aged above 30 years, 3.1%(n=39) were aged less than 20 years and 0.80%(n=10) mothers' age was not known. 54.3% (n=673) of children were urban population whereas 39.17%(n=485) children came from rural and semiurban areas and 6.46%(n=80) children came from other states too.

As shown in table 2, 99.43%(n=1231) of the children in our study received ante natal care and only 0.56% (n=7) did not receive ante natal care. In our study sample most common risk factor associated in the antenatal period was anemia13.6%(n=169), followed by oligohydramnios12.2%(n=152) and hypertension 9.61% (n=119). 6.46%(n=80) of mothers had thyroid disorders, 2.90%(n=36) had diabetes, 2.74%(n=34) had hypotension,1.29%(n=16) had polyhydramnios, 0.88%(n=11) had seizures, 0.48%(n=6) had hemorrhage, 0.32%(n=4) had emesis, 0.16%(n=2) had jaundice and 0.16%(n=2) had urinary tract infection during the ante natal period.

56.7%(n=702) of children were born out of normal vaginal delivery whereas 43.2%(n=536) of children were delivered through cesarean section.77.3% (n=957) children were born at term, while 21.08%(n=261) were pre term children and 1.61%(n=20) were born post term. 63.57%(n=787) of children were born in government hospitals, while 33.19%(n=411) children were born in private hospitals and a small proportion of 3.23%(n=40) were delivered at home.

The above table 3 shows the clinical profile of children containing diagnoses and problems during birth across all the three years from 2017 to 2019. 31.17%(n=386) of children had birth asphyxia,23.66%(n=293) had low birth weight, 20.27%(n=251) had neonatal jaundice,19.22%(n=238) children had neonatal seizures during perinatal period. 7.10%(n=88) of children had low birth weight with hypoxic ischemic encephalopathy, 3.55%(n=44) children's birth weight was not known, 3.31%(n=41) had low birth weight with non nutritive sucking, 7.35%(n=91) had low birth weight with neonatal jaundice, 2.01%(n=25) had sepsis, 1.61%(n=20) had pneumonia, 1.45%(n=18) had meningitis and 0.80%(n=10) children had no paediatric follow up after birth.

As shown in table 3 and figure 3 Majority of the children were diagnosed to have developmental delays, 80.85%(n=1001). 6.70%(n=83) children were diagnosed to have cerebral palsy, 5.41%(n=67) children had microcephaly, 2.18%(n=27) had downs syndrome, 1.77%(n=22) had hemiparesis, 1.05%(n=13) had seizures, 0.80%(n=10) had regression, 0.48%(n=6) had hydrocephalus, 0.40%(n=5) had breath holding spells, 0.16%(n=2) had west syndrome, 0.08%(n=1) had gullian barre syndrome and 0.08%(n=1) had erbs palsy.

As shown in table 4 and figure 4, 25.36%(n=314) of children were found to have mild developmental delay in DQ, 14.1%(n=175) had moderate developmental delay, 13.4%(n=166) had severe developmental delay, 12.55(n=155) had borderline developmental delay, 5.08%(n=63) had profound developmental delay, 1.93%(n=24) had average developmental delay, 0.32%(n=4) had below average developmental delay. 27.2%(n=337) of children did not undergo DQ due to loss of follow up.

Table 1: showing socio demographic details

		2017	Percentage	2018	Percentage	2019	Percentage	total	Percentage
Total		521		435		282		1238	
Gender	Male	312	59.88%	250	57.47%	161	57.09%	723	58.40%
	Female	209	40.11%	185	42.52%	121	42.90%	515	41.59%
Age	0 to 1 yr	189	36.27%	165	37.93%	125	44.32%	479	38.69%
	1 to 2 yr	221	42.41%	196	45.05%	118	41.84%	535	43.21%
	2 to 3 yr	88	16.89%	60	13.79%	37	13.12%	185	14.94%

ISSN (O): 2687-5365; ISSN (P): 2753-6556

	3 to 4 yr	23	4.41%	14	3.21%	2	0.70%	39	3.15%
Maternal age	<20 yrs	12	2.30%	25	5.74%	2	13.12%	39	3.15%
	20 to 30 yrs	439	84.26%	372	85.51%	253	89.71%	1064	85.94%
	>30 yrs	68	13.05%	32	7.35%	25	8.86%	125	10.09%
	Not known	2	0.38%	6	1.37%	2	13.12%	10	0.80%
Domicile	Local	261	50.09%	251	57.70%	161	57.09%	673	54.36%
	Rural	230	44.14%	151	34.71%	104	36.87%	485	39.17%
	Other states	30	5.75%	33	7.58%	17	6.02%	80	6.46%

Table 2: showing risk factors

		2017	%	2018	%	2019	%	total	%
Ante natal care	Received	517	99.23%	433	99.54%	281	99.64%	1231	99.43%
	Not received	4	0.76%	2	0.45%	1	0.35%	7	0.56%
Ante natal problems	Poly hydramnios	7	1.34%	2	0.45%	7	2.48%	16	1.29%
	Oligo hydramnios	63	12.09%	50	11.49%	39	13.82%	152	12.2%
	Hypertension	65	12.47%	22	5.05%	32	11.34%	119	9.61%
	Hypotension	15	2.87%	12	2.75%	7	2.48%	34	2.74%
	Anaemia	77	14.77%	47	10.80%	45	15.95%	169	13.65%
	Thyroid disorders	30	5.75%	32	7.35%	18	6.38%	80	6.46%
	Diabetes mellitus	4	0.76%	24	5.51%	8	2.83%	36	2.90%
	Ante partum hemorrhage(APH)	6	1.15%	0	0	0	0	6	0.48%
	Seizures	4	0.76%	6	1.37%	1	0.35%	11	0.88%
	Jaundice	1	0.19%	1	0.22%	0	0	2	0.16%
	Urinary tract infection(UTI)	2	0.38%	0	0	0	0	2	0.16%
	Emesis	3	0.57%	1	0.22%	0	0	4	0.32%
	Others	244	46.8%	238	54.71%	125	44.32%	607	49.03%
Type of delivery	Normal vaginal delivery(NVD)	280	53.74%	266	61.14%	156	55.31%	702	56.70%
	Cesarean section	241	46.25%	169	38.85%	126	44.68%	536	43.29%
Duration	Term	393	75.43%	339	77.93%	225	79.78%	957	77.30%
	Pre term	119	22.84%	90	20.68%	52	18.43%	261	21.08%
	Post term	9	1.72%	6	1.37%	5	1.77%	20	1.61%
Place of delivery	Private hospital	188	36.08%	147	33.79%	76	26.95%	411	33.19%
	Government hospital	315	60.46%	274	62.98%	198	70.21%	787	63.57%
	Home delivery	18	3.45%	14	3.21%	8	2.83%	40	3.23%

Table 3: showing clinical profile

		2017	%	2018	%	2019	%	total	%
Problems at birth	Low birth weight(LBW)	134	25.71%	90	20.68%	69	24.46%	293	23.66
	Weight not known	27	5.18%	10	2.29%	7	2.48%	44	3.55%
	Birth asphyxia	159	30.51%	137	31.49%	90	31.91%	386	31.17%
	Neonatal seizures(NNS)	80	15.35%	92	21.14%	66	23.40%	238	19.22%
	Neonatal jaundice(NNJ)	113	21.68%	82	18.85%	56	19.85%	251	20.27%
	LBW with HIE(hypoxic ischemic encephalopathy)	29	5.56%	35	8.04%	24	8.51%	88	7.10%
	LBW with NNS	16	3.07%	9	2.06%	16	5.67%	41	3.31%
	LBW with NNJ	45	8.63%	19	4.36%	27	9.57%	91	7.35%
	No follow up	1	0.19%	6	1.37%	3	1.06%	10	0.80%
	Seizures	134	25.71%	74	17.01%	45	15.95%	253	20.43%
	Meningitis	6	1.15%	12	2.75%	0	0	18	1.45%
	Sepsis	11	2.11%	9	2.06%	5	1.77%	25	2.01%
	Pneumonia	15	2.87%	2	0.45%	3	1.06%	20	1.61%
Diagnosis	Developmental delay(DD)	387	74.28%	364	83.67%	250	88.65%	1001	80.85%
	Cerebral palsy(CP)	60	11.51%	23	5.28%	0	0	83	6.70%
	Seizures	10	1.91%	0	0	3	1.06%	13	1.05%

ISSN (O): 2687-5365; ISSN (P): 2753-6556

	Microcephaly	22	4.22%	23	5.28%	22	7.80%	67	5.41%
	Downs syndrome	15	2.87%	9	2.06%	3	1.06%	27	2.18%
	Hemiparesis	14	2.68%	7	1.60%	1	0.35%	22	1.77%
	Hydrocephaly	3	0.57%	1	0.22%	2	0.70%	6	0.48%
	Regression	4	0.76%	6	1.37%	0	0	10	0.80%
	Breath holding spells(BHS)	2	0.38%	2	0.45%	1	0.35%	5	0.40%
	GBS	1	0.19%	0	0	0	0	1	0.08%
	West syndrome	2	0.38%	0	0	0	0	2	0.16%
	Erbs palsy	1	0.19%	0	0	0	0	1	0.08%

Table 4: showing DQ of the study population

DQ	2017	percentage	2018	Percentage	2019	Percentage	total	percentage
Profound DD	16	3.07%	27	6.20%	20	7.09%	63	5.08%
Severe DD	53	10.17%	69	15.86%	44	15.60%	166	13.40%
Moderate DD	78	14.97%	57	13.10%	40	14.18%	175	14.13%
Mild DD	135	25.91%	91	20.91%	88	31.20%	314	25.36%
Borderline DD	60	11.51%	49	11.26%	46	16.31%	155	12.52%
Below average DD	2	0.38%	2	0.45%	0	0	4	2.89%
Average DD	2	0.38%	19	4.36%	3	1.06%	24	1.93%
DQ not done	175	33.58%	121	27.81%	41	14.53%	337	27.22%

DISCUSSION

The present study is a hospital based, single centre study which has a lot of implications to be discussed of, which are very important in identifying the socio demographic and clinical risk factors associated in children with disabilities. Since the relation between socio demographic variables and development of clinical risk factors is inter related and one causes the other this study is significantly cardinal and essential. This study was prioritized in identifying the type of risk factors associated with developmental delay in children attending early intervention program in a tertiary care centre.

In 1238 children studied 58.4%(n=723) were males and 41.5%(n=515). Male preponderance was also seen in studies by Sachdeva et al, Aggarwal et al, Koul et al, Darivemula et al.[1-4] This finding is also in line with the systematic analysis of global burden of disease study done in 2018 which included 52.9 million children across the world from 195 countries.[5] The possible reason for higher male population in the sample could be because male children being brought to clinical attention earlier than females or it could be because of inheritance patterns affecting predominantly males than females.

In our study 43.2%(n= 535) of children were between 1 to 2 years of age which formed the majority and the possible reason for failure of identification of delay in development less than 1 year could be due to lack of awareness of early warning signs or lack of awareness of health care services/ programs available to detect these signs early or due to financial constraints to avail the services at the earliest and assumption of parents that the child may naturally cope up with the delay on its own pace.

54.3% (n=673) of children were urban population because of the fact that the location of the study centre is in a metropolitan city which caters to population of the city.

In this study 411 children were delivered in private hospitals and 787 children were delivered in government hospitals, combining 96.76%(n=1198) were institutional births and 99.43% mothers received ante natal care. These findings are in line with the national family health survey(NFHS) conducted for 2019 to 2020 years which states that 98.3% were institutional deliveries and 70% mothers received ante natal care in the district of Hyderabad.[6] This is because of the awareness spread by various health programs regarding the importance of institutional deliveries and increase in accessibility of health care services even at rural areas.

In the present study 31.17%(n=386) of children had birth asphyxia,23.66%(n=293) had low birth weight, 20.27% (n=251) had neonatal jaundice, 19.22% (n=238) children had seizures during the perinatal period. All these perinatal events combined together constitute 94.3% of the perinatal problems. Similar findings were found in study done by Pallavi Sachdeva et al, who reported perinatal etiology (63.10%) to be highest in their study population with global developmental delay. Also in studies done by Agarwal et al and Jauhari et al,[7] reported perinatal etiological factors constituting 69.7% and 54.1% respectively, to be highest when compared to other causes in their study population with developmental delay. In a prospective hospital based study done in sultan Qaboos university hospital in Oman from January 2008 to June 2009 by Roshan Koul et al,[3] also reported perinatal asphyxia to be the most common etiological factor to be associated in their study population of global developmental delay. This common finding in existing literature supports the findings in our study and indicates that any insult during perinatal period is a significant risk factor for developmental delays and disabilities associated with them in future.

In the current study 80.85%(n=1001) of children were diagnosed to have developmental delays whereas 13.4%(n=83) of children were diagnosed to have cerebral palsy and 5.41%(n=67) with

ISSN (O): 2687-5365; ISSN (P): 2753-6556

microcephaly, 2.18% (n=27) with downs syndrome and 1.05%(n=13) were diagnosed with seizure disorder which formed the major diagnoses in our study sample. This finding is in line with a hospital record based retrospective study done by Kaur et al,[8] in 2006 who reported that 88% of children in their study diagnosed as mental retardation and 50% of children had cerebral palsy and 25% had epilepsy. There could be a plethora of causes for developmental delay, where cerebral palsy and epilepsy are few of the important causes for it and our study is in line with the existing literature.

In this study it was found that 25.36% of children had mild developmental delay according to developmental quotient, which is the majority. According to the systematic analysis of global burden of disease study done in 2018, intellectual disability was the major contributor of years lived with disability among children from African and south Asian countries.[5]

Even according to world report on disability given by world health organization around 200 million children under age 5 are failing to reach their potential in cognitive and social-emotional development and such children are likely to face discrimination and restricted access to social services, including early-childhood education; to be underweight and have stunted growth; to be subject to severe physical punishment from their parents.[10]

So the results obtained in the current study adds to the existing literature.

CONCLUSION

We would like to conclude on a note that assessment of risk factors associated with developmental delays and childhood disabilities is an important step which would help us to address the problems and provide necessary health care services, spread awareness to the parents or care takers regarding the warning signs to detect the disability at the earliest and also provide intervention at the earliest , so that we can reduce the burden of the disease, reduce the disability adjusted life years, assist the child to achieve the highest functional level possible thus improving the quality of life of the child and their family. Also health care providers would be able to enhance the intervention services and awareness programs in future in accordance with the results obtained.

Limitations: this study had a certain limitations like being a single centre study the results cannot be externalised. Other associated socio demographic variables like socio economic status, parental factors are not assessed as this study did not include interview of the parents of the subjects.

Other causes of childhood disabilities like chromosomal abnormalities, metabolic disorders, endocrine disorders are not assessed as this is not an interventional study.

Interviewing the parents of the children would have drawn more information regarding the etiology of their disabilities.

REFERENCES

1. Sachdeva, Pallavi & Sadasivan, Sitaraman & Minocha, Priyanka & Jain, Rohit & Choudhary, Anita & Jetha, Kapil. (2018). Etiological Profile of Children with Global Developmental Delay: A Single Center Study. Journal of Pediatric Neurology. 17. 10.1055/s-0038-1626693.
2. Aggarwal A, Mittal H, Patil R, Debnath S, Rai A. Clinical profile of children with developmental delay and microcephaly. J Neurosci Rural Pract 2013;4(03):288–291
3. Koul R, Al-Yahmedy M, Al-Futaisi A. Evaluation of children with global developmental delay: a prospective study at Sultan Qaboos University Hospital, Oman. Oman Med J 2012;27(04):310–313
4. Darivemula SB, Nagoor K, John KR, Kahn PS, Chittooru CS. Morbidity profile of children from birth to 18 years of age referred for intervention to the district early intervention centre in a District Hospital, Andhra Pradesh. Indian J Public Health. 2020 Jan-Mar;64(1):55-59. doi: 10.4103/ijph.IJPH_11_19. PMID: 32189684.
5. Global Research on Developmental Disabilities Collaborators. Developmental disabilities among children younger than 5 years in 195 countries and territories, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet Glob Health. 2018 Oct;6(10):e1100-e1121. doi: 10.1016/S2214-109X(18)30309-7. Epub 2018 Aug 29. Erratum in: Lancet Glob Health. 2018 Dec;6(12):e1287. PMID: 30172774; PMCID: PMC6139259
6. International Institute for Population Sciences (IIPS) and ICF. 2019. National Family Health Survey (NFHS-5), 2019-20: India. Mumbai: IIPS. District fact sheet , Hyderabad, Telangana.
7. Jauhari P, Boggula R, Bhave A, Bhargava R, Singh C, Kohli N, Yadav R, Kumar R. Aetiology of intellectual disability in paediatric outpatients in Northern India. Dev Med Child Neurol. 2011 Feb;53(2):167-72. doi: 10.1111/j.1469-8749.2010.03823.x. Epub 2010 Nov 18. PMID: 21087235
8. Kaur P, Chavan BS, Lata S, Kaur A, Tinku S, Arora Y, Ratnam V. Early intervention in developmental delay. Indian J Pediatr. 2006 May;73(5):405-8. doi: 10.1007/BF02758561. PMID: 16741325.
9. Rosenberg SA, Zhang D, Robinson CC. Prevalence of developmental delays and participation in early intervention services for young children. Pediatrics. 2008 Jun;121(6):e1503-9. doi: 10.1542/peds.2007-1680. Epub 2008 May 26. PMID: 18504295.
10. World Health Organization, World Bank. World Report on Disability.Geneva, World Health Organization;2011.Availablefrom:http://www.who.int/disabilities/world_report/2011/en/index.html.

ISSN (O): 2687-5365; ISSN (P): 2753-6556