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Original Article

Pediatric Education and Research
Volume 2 Number 1, January - March 2014

Journey from Smoke Free Himachal Pradesh to Tobacco Free to Eco-Friendly Hills of the Adolescent State

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Abstract

Background: The hill state of Himachal Pradesh with a varied geographical terrain has a higher incidence of smoking for men (33.6%) as compared to the national average (32.7%). As per Global Adult Tobacco Survey (GATS 2010), 21.2% of adults consume tobacco in some form or other. About 40% of the adult males and adolescents consume tobacco of which 33% smoke and 3.8% women of adult women consume tobacco with majority smoking. The exposure to second hand smoke at home is 83% in HP and is among the highest in India. **Interventions:** For creating an environment of safe and fresh air, Health department with budding Himachal Pradesh Voluntary Health Association (HPVHA) focused on capacity building/empowering of stakeholders for inter sectoral collaborations, creation of effective coalitions. It initiated policy advocacy for formation of Steering Committees at State and District level, creation of flying squads and advocated for notification of courts for compounding the fines and trial for offence on tobacco advertising. It focused on stakeholder sensitization on smoke free laws and conducted about 100 workshop/trainings amongst the authorized personnel. The momentum has now been taken to all district/ sub district levels and through rural penetration, panchayat resolutions of smoke free are being passed. **Results and Lessons learnt:** Micro level networks and collaborations upto the grassroots with cross sectional stakeholders formed. All district/ development blocks are complying with the smoke free provisions, more than 40000 violators fined in the state in 2 years and about Rs. 5 million amount have been collected as fine by the enforcement officials. About 36000 stakeholders/enforcement officials sensitized at workshops and meetings. 90% Panchayats have passed smoke free resolutions and compliance of smoke free in the state reached to 83%. A cadre of sensitized stakeholders from cross section departments, community based institutions has been formed and combined effect of health department and HPVHA have realized that the social legislation of smoke free laws has to be initiated from the top focusing on policy advocacy and go down gradually in the hierarchy by strengthening the enforcement mechanism and community awareness. **Conclusions:** Unless a resolute effort is made to implement smoke free laws, it will have no concrete consequence. It needs to be efficiently executed and enforced with cross sectional stakeholders with an incorporation of knowledge sharing, information exchange, coalition-building, networking, advocacy with policymakers and enforcement agencies, capacity building, monitoring and reporting, media advocacy.

Keywords: Smoke free; Second hand smoker; COTPA; Networking; Himachal Pradesh.

Introduction

The hill state of young and adolescent Himachal Pradesh with a varied geographical terrain has a higher incidence of smoking for men (33.6%) as compared to the national average (32.7%). As per the GATS, 2010, 33% males and 3.8% females smoke. Second hand

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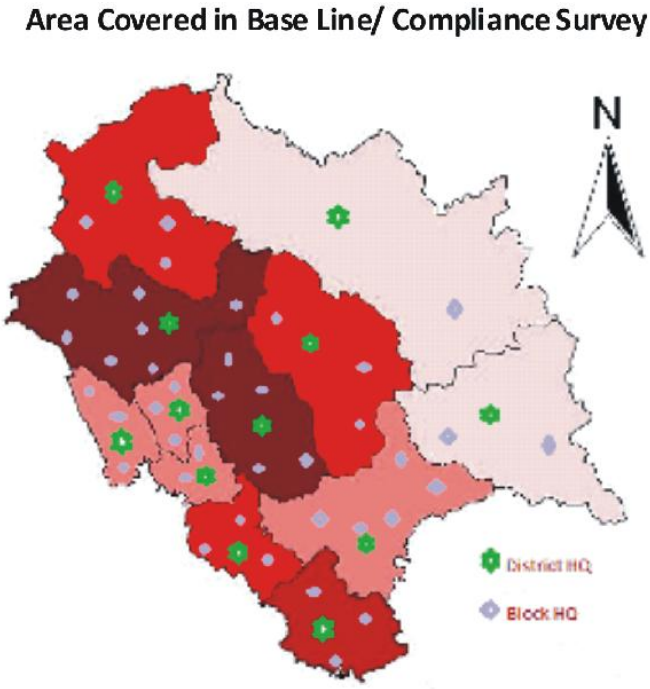


exposure to tobacco at home is highest in Himachal Pradesh, that is 83% and highest in India. That is why it is one of the burning public health problems. In Himachal Pradesh, the smoking is a part of culture in cold hills. Bidis and cigarettes are often offered in marriages and local functions as a mark of respect. Britishers used to smoke cigar as status symbol. Shimla, the queen of hills was very famous for PAN shops. But for last over two years much water has flowed down the hills in controlling and containing the tobacco products all round.

Department of Community Medicine, Indira Gandhi Medical College, Shimla and Population Research Center, Himachal Pradesh University, Shimla conducted the End line Compliance Survey independently which observed 85.42% compliance under section 4 of Cigarettes and Other Tobacco Products Act, 2003 (COTPA) in Himachal Pradesh. Out of the twelve districts in the state, Bilaspur stands first with score as 93% and the biggest Kangra district rolls down to the bottom with score as 80%. The Total Fertility Rate of Himachal Pradesh is 1.9 and hence is heading towards population stabilization and more than 80% smokers are adolescents and young people.

On basis of scientific/technical survey, Himachal Pradesh has been validated as the Smoke Free State. On 3rd July, 2013 the state was declared as *Smoke Free*. The journey from smoke free state to tobacco free state has now started[1] Initially, when we started this program of tobacco control in the state and the objectives were: To reduce the second hand smoke at home in Himachal Pradesh and to make the state SMOKE FREE. In this campaign, there were many research questions: Is tobacco control a priority presently? What will we gain if we control tobacco? What about the rights of smokers? Why don't we stop the manufacturing of tobacco products? What is the alternate of tobacco? Still we examined the context, content and implementation of the smoke free laws in the State of Himachal Pradesh (HP) focusing first on the Capital of the State, Shimla and its

- Challenges
- The role of leadership, campaigns, initiatives, key partners
- Opinion poll, Enforcement and compliance
- The impact of the law

- Lessons learned
- Future plans

Methodology/Interventions

Smoke Free Himachal

Creation of Smoke Free Himachal Pradesh through (1st May, 2011 – 30th April, 2013)

To achieve the objective of Smoke Free (SF) Himachal, four interventions were employed:

1. Sensitization and building of capacity of the stakeholders;
2. Awareness generation among the public;
3. Community participation and
4. Effective enforcement of SF provision of Cigarettes and Other Tobacco Products Act, 2003 (COTPA) and then revised rules, 2008

In addition to above noted four interventions, Focused Strategies were also employed:

a. Important part was institutionalizing mechanisms of implementation at every department, district, block and upto panchayat level.
b. Facilitation in creation/ strengthening/ capacity building of enforcement officials and flying squads
c. Capacity building/ sensitization of key stakeholders/authorized personnel;
d. Political advocacy,
e. Networking and Liaisoning;
f. Developing and Disseminating Information, Education and Communication (IEC) material;
g. Reporting Violations and finally media sensitization were different significant variables for this project.

Results and Discussion

Smoke Free Campaign in Shimla was initiated in 2007 with signature campaign and submission of memorandum to then Governor and Chief Minister. It was the turning point in the tobacco control in Himachal Pradesh when a north zone workshop 16-17 Jan 2009 was organized by WHO/ Govt of India and addressed by the Health Minister of Himachal Pradesh at Chandigarh. The health minister in his address said that a comprehensive approach for tobacco control is the need of hour. This is the right time to address this issue in a proper way through awareness and enforcement. He said the issue is very serious and Himachal will set standards in tobacco control and will become a model state in the country. Chief Minister of Himachal Pradesh appealed to the people of the state to make Himachal a Tobacco Free State on the World Anti Tobacco Day on 31.5.09.

Campaigns

5.5.09 –The 2nd major step was the State level advocacy workshop held in the HP secretariat on 5.5.09 under the chairpersonship of chief secretary to the Govt of HP, which was organized by HPVHA in collaboration with the Health Department and was funded by South East Asia Union. The workshop was attended by about 100 participants, Principal Secretaries, Secretaries, Head of Departments, Director General of Police, media persons. Before that a preparatory meeting of the state steering committee was held at Health Family Welfare Training Centre, Parimahal under the Chairmanship of Principal Secretary (Health). Chief Secretary held the meeting regarding the issues in her chamber on 6.5.09 with Secretary Health and gave the necessary directions. The next step was the establishment of new

Directorate of Health Safety and Regulations by the Govt to deal with the regulatory issues of health

In the month of August, the police persons of the rank of Head constable and above were authorized to take action under section 4 & 6. Simultaneously, the directions were passed to all the institutions to print the receipt and challans at their own and deposit the fine/ compounding fee in a bank account at local level and the institutions/authorities were authorized to utilize the funds for anti tobacco activities.

The State level advocacy workshop on Tobacco control Laws and related issues was organized at Hotel Peterhoffs, SHIMLA and Health Minister of Himachal Pradesh was the Chief Guest. In the workshop all HODs, Officers of District Administration, Police, Health, Ayurveda, Food, Excise, Drug, were invited including 30 media persons and NGOs. There were about 130 participants in the workshop. Health Minister directed all the departments to implement the provisions of COTPA 2003 and directed the authorities to display the boards and signages before 31.1.2010. It was decided in the workshop that such follow-up of workshops would be organized in each district. There was series of workshops in the districts as:

6.1.10 - District level Advocacy Workshop at Bachat Bhawan, Hamirpur under the Chairmanship of ADM, Hamirpur and it was attended by 40 officers of distt/ block level.

7.1.10 - District level Advocacy Workshop at Bachat Bhawan, Dharamshala under the Chairmanship of Deputy Commissioner, Kangra and it was attended by 50 officers of district/block level.

17.1.10 - District level Advocacy Workshop at Bachat Bhawan, Solan under the Chairmanship of Health Minister of HP and it was attended by 60 officers of distt/ block level.

20.3.10 - District level Advocacy Workshop at Chief Medical Officer, Conference Hall Mandi under the Chairmanship of PWD Minister of HP and it was attended by 60 officers of distt/ block level.

22.3.10 - District level Law Enforcer Training at Bachat bhawan Shimla under the Chairmanship of Mayor, MC Shimla and it was attended by 30 officers of distt/ block level.

25.3.10 - District level Law Enforcer Training at Bachat bhawan Shimla under the Chairmanship of Sh. Suresh Bharadwaj, MLA Shimla and Mayor, MC Shimla. It was attended by 30 officers of distt/block level.

29.4.10 - Block level Advocacy Workshop at BDO Conference Hall Karsog, Mandi under the Chairmanship of SDM Karsog and it was attended by 30 officers of block level

30.4.10 - District level Advocacy Workshop at Bachat Bhawan,Kinnaur under the Chairmanship of DC Kinnaur and it was attended by 30 officers of Distt / block level.

10.5.10 - District level Advocacy Workshop at Bachat Bhawan, Una under the Chairmanship of DC Una and it was attended by 30 officers of Distt / block level.

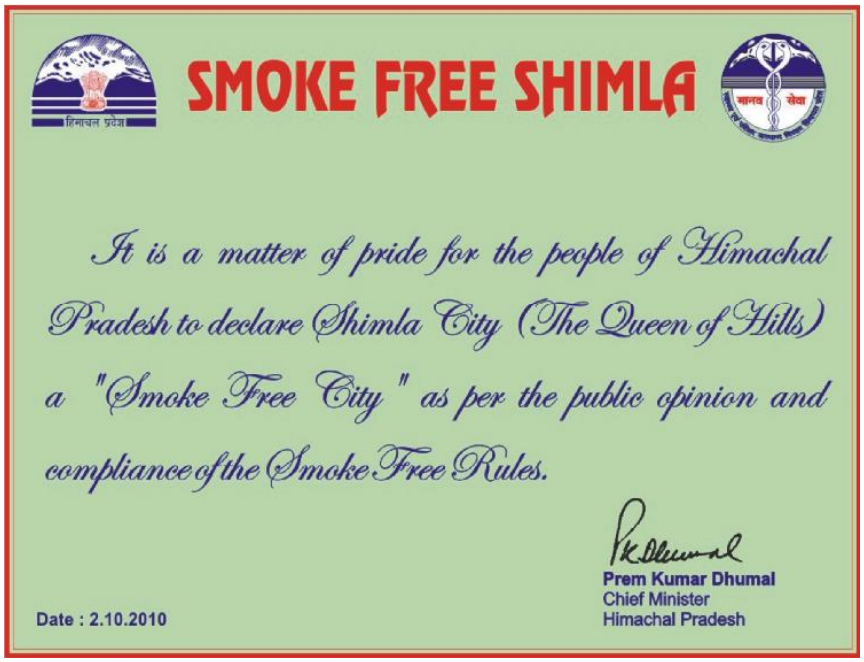
11.5.10 - District level Advocacy Workshop at Bachat Bhawan, Kullu under the Chairmanship of DC Kullu and it was attended by 40 officers of District / block level.

17.5.10 - State Level Meeting- The workshop was organized in the HP secretariat under the Chairmanship of Principal Secretary (Health) Himachal Pradesh.

On 2nd October, 2010 Shimla city was declared as Smoke Free by Honorable Chief Minister, Prem K Dhumal.

World Health Organisation recognised on the occasion of World No Tobacco Day (31st May, 2011) to HPVHA and on World No Tobacco Day_WNTD (31st May, 2012) to Govt of Himachal Pradesh. Having got declared Shimla SF, enthused the training programs in all twelve district headquarters and forty block head quarters of Himachal Pradesh were got started:

Smoke Free Project-*Activities Vs*



Trainings-District and Block Planned/Conducted

S. No.	Name of District/ Head Quarter	Name of Block Head Quarters Covered	No of Blocks
1	Bilaspur	Jhanduta, Ghumarwin	2
2	Chamba	Salooni, Bhatiyat/Dalhousie, Bharmour	3
3	Hamirpur	Sujanpur, Nadaun, Bijhadi	3
4	Kangra/Dharmshala	Nurpur, Nagrota Surian, Indora, Bhawarna/Palampur, Baijnath, Lamba Gaon, Sulah	7
5	Kinnour/Rekong Peo	Kalpa/Nichar,Pooh	2
6	Kullu	Ani, Banjar, Nagar/Manali	3
7	Lahaul Spiti/ Keylong	Kaza	1
8	Mandi	Dharmpur, Siraj, Drang/Paddar, Sundernagar, Karsog	5
9	Shimla	Rampur, Theog, Chauhara/Rohroo, Chaupal, Shimla Rural	5
10	Sirmour/Nahan	Shilai, Sagrah, Paonta	3
11	Solan	Nalagarh/Baddi, Dharmpur, Kunihar	3
12	Una	Haroli, Gagret, Bangan	3
	12 DHQ	40 BHQ	40

Achievements were begun, e.g., About 30,000 Public Places and 12,000 Enforcement officials at Block/District Head Quarter/Panchayat were mapped. Opinion Poll and Baseline Survey and Analysis were conducted in 12 Districts HQ and 40 Block HQ. 15000 copies were distributed for Dhumrpaan Mukt Himachal, Pamphlet, Folders on COTPA,

Meetings upto Panchayat level were held. Flying squads in 32 districts were formed. Smoke free agenda was placed gram sabhas in over 600 meetings were successfully put.

Nodal Officers for all the departments were notfied. 5849 notices were served to violators under sections 4,5,6 and 7 of COTPA, 2003.

Project activities/ Achievements

Activities	Achievement
Mapping of Public Places/ Enforcement Officials of Himachal Pradesh	About 30000 Public Places and 12000 Enforcement officials at Block/District HQ/Panchayat were mapped
Opinion Poll and Baseline Survey and Analysis	12 Districts HQ and 40 Block HQ
Development and Dissemination of IEC	Dhumrpaan Mukt Himachal, Pamphlet, Folders on COTPA, 2003, Dissemination of about 15000 copies in Himachal Pradesh
State Workshops	1 for NGOs and 1 for Project Launching
District Level Workshops	12 at District HQ
Media Training and Sensitization Workshop	3 training and more than 20 sensitization in each districts
Block Level Workshops	40 blocks

Activities/Achievements

Activities	Achievements
Cluster Level Meetings were done up to Panchayat level	**More than 600 meetings**
Facilitation for Activation of Flying Squads	**32 Block Flying Squads**
Officials Trained	**More than 7000 officials up Panchayat level**
Officials Sensitized	**More than 20000 officials**
Circulars and Notifications Issued by officials from State and district	**More than 250 circulars and notifications**
Smoke Free in Gram Sabha Agenda	**Attended more than 600 Gram Sabha's Meetings Continuous in Agenda from July, 2012**
Sensitisation Sessions and continuous follow ups for Establishment of Enforcement Mechanism at Public Places	**Facilitated more than 2900 offices**

Total violations were 39157 and the amount realized was over Rs. 50 lacs approx.

Special highlights include closure of Bidi industry in district Hamirpur;

-Advocacy of tax on tobacco increased from 9% to 40% for cigarettes and 4% to 26% (Bidi)

By the end of April, 2013, 11 districts were declared as Smoke Free by respective Deputy Commissioners excepting Kangra.

If we happen to observe the ranking based upon the independent survey, Bilaspur stands first with score as 93% and the biggest Kangra district rolls down to the bottom with score as 80%, a step heading towards smoke free status. India has done well in some areas of tobacco control but needs to do much more in others. Uttar Pradesh in 2003 bans all forms of tobacco advertising other than at the point of sale.

Activities/Achievements

Activities	Achievement
Liaisioning for notifying Nodal Officers by various Departments	About all departments have notified the Nodal Officers
Issuance of Notices to Violators	**5849** under Section **4, 5, 6** and **7** of COTPA, 03
Facilitation for procurement/distribution Signages (coninvestment from other sources)	**Section 4** = 45000 **Section 6** = 5000
Facilitation for Display of Hoardings	In Shimla, Manali, Nahan, Mandi etc.
Frequent follow ups for District Steering and Monitoring Committee Meetings	18 at district levels
Violation Reported under COTPA	Violations = 39157 Amount = 4608215

Special Highlights

Activities	Achievement
Monitoring of Tobacco Industries	Closure of Bidi Industry in Hamirpur
Advocacy for Tax on tobacco products	9% to 40% (Cigarette) 4% to 26% (Bidi)
Product Substitution by Vendors	48 out of 175 Vendors
Removal of Promotional Boards	More than 12000
Initiation against Hooka Bars	Shimla and Kullu
Initiation of Gutkha Ban	Regular reporting/monitoring
Media Coverage	About 5000 in 2 years

Highlights of Project

- Increase in Percentage of display of signage at Public Places (48% ?)
- Decrease in number of violations (70%-80% ?)
- ? Percentage of Compliance under other sections (60%-70% increase)
- Establishment of Enforcement Mechanism upto Panchayat level as sustainability measure

Final Achievements- Declaration of Smoke Free Districts

- 57/77 Blocks have been declared Smoke Free
- More than 2500/3243 Panchayats have been declared Smoke free
- More than 93% Compliance by Educational Institutions
- More than 83% Compliance by Accommodations
- More than 91% Compliance by Health Institutions
- More than 87% Compliance by Public Transport

Ranking of Districts based on Compliance Survey

District Rank as per Compliance Survey

District	Overall %	Rank
Himachal Pradesh	**85.42**	
Bilapsur	92.76	**1**
Shimla	92.17	**2**
Mandi	91.23	**3**
Kullu	88.46	4
Lahaul & Sapiti	87.73	5
Kinnour	85.57	6
Solan	85.19	7
Una	82.95	8
Sirmour	81.06	9
Hamirpur	80.86	10
Chamba	80.30	11
Kangra	80.17	12

Round the globe, the various countries like Tasmania which has announced a 'Tobacco-Free Millennium Generation' policy, wherein no one born after 2000 will be ever sold tobacco legally. Singapore is likely to follow suit. Bhutan has already banned the sale of all tobacco products. Some countries have been more ambitious and have set a target of reducing such prevalence to less than 5% — New Zealand and a group of Pacific Island Nations (2025), Finland (2030), Scotland (2034).

Bulging reproductive age group (15 49 years) with mild upward shift of the geriatric population is the root cause for steadily

State Declaration Function

increasing population in hills of Himachal but heading towards stabilization and of course, not exploding like India with booming fertility rate and 80% of the smokers fall in the group of adolescence and youth period[2]. Here a point of note is that on basis of scientific/technical survey, Himachal Pradesh has been validated as the Smoke Free State. On 3rd July, 2013, Health Minister, Thakur Kaul Singh declared the state as SMOKE FREE

Now we have challenges ahead, more dreams to be fulfilled:

a. Complete ownership by the Government
b. Introduction of Special Budget for Tobacco Control in National Health Mission/ Department of Health and Family Welfare Department
c. To stop second hand smoking at Homes;
d. To reduce Tobacco Consumption from 22.2% to 15%.

What we have achieved as Smoke free status for HP, now it is important to sustain section 4 in 2nd phase till April 2015 and at the same time, effective implementation of sections 5, 6 and 7 of COTPA is extremely important.

A few lines from Robert Frost poem:

Woods are dark and deep;

But I have the promises to keep.

Miles to go before I sleep,

Miles to go before I sleep,

Our Journey From Smoke Free State To Tobacco Free State Has Now Started.

Acknowledgements

Our profuse thanks to Dr. Gopal Chauhan, State Tobacco Program officer, Shimla for intellectual outputs in the manuscripts. Our thanks are also to:

Key Partners

1. *HPVHA* - The voluntary health association in Himachal Pradesh has been the most effective partner with the Govt all the time. They organized a lot of workshops, in the various parts of the state especially in Shimla made a political consensus and also organized the training workshops for the law enforcers. They played the key role in displaying the signage's and awareness of the people in Shimla town.
2. *The Union South East Asia* - The Union South East Asia provided the technical support, trainings of international standards and funding for the Smoke Free Shimla Project. The Union organized the sensitization workshops in Shimla. The Union helped in conducting the OPINION Poll and compliance survey of smoke free rules in Shimla.
3. *WHO* - The WHO supported financially and technically to organize the largest workshop in the state. In the workshop the major decisions for tobacco control were taken. The program percolated to the District levels after this workshop i.e. 11.12.09.

4. Government of India - The officers and officials from Government of India helped a lot in encouraging us and responded to the quarries raised by the people and us immediately.

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Original Article

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Screening of Neonates for Glucose-6 -Phosphate Dehydrogenase Deficiency

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Abstract

Context: Glucose – 6 – phosphate dehydrogenase (G-6-PD) is an enzyme that participates in the first step of Hexose monophosphate pathway of glucose metabolism. Deficiency of this enzyme is most common genetic disorder in India. Its deficiency causes hemolysis which eventually lead to acute hemolytic anemia and neonatal jaundice. The hemolysis in these deficient patients are triggered by bacterial, viral infections, drugs like aspirin and chloroquine, foods like fava beans Period from after birth to first 4 weeks is the neonatal period and the child is called a neonate.There is no cure for G-6-PD.Early detection and prevention of hemolytic episodes by avoiding the triggers is the only cure for this deficiency. **Aim:** To screen the neonates for glucose -6-Phosphate dehydrogenase deficiency so as to prevent the morbidity and mortality occurring due to this deficiency. **Material and Methods:** Hundred neonatal blood sample were obtained from the Labour room, of the Hospital.The samples were analysed by Dye Decolourization method. **Statistical Analysis:** Pie Diagram is used to show the number of affected neonates found in screening. **Results:** Of the hundred samples, one was found to be G-6- PD deficient and two were found to be G-6-PD deficiency carriers. **Conclusion:** G-6-PD deficiency testing should be done as a screening procedure in the whole country as early diagnosis and prevention is the only way of treating this deficiency disorder and avoiding its complications.

Keywords: Glucose – 6 – phosphate dehydrogenase (G-6-PD); Deficiency; Neonate; Hemolysis; Screening.

Introduction

Glucose-6-phosphate dehydrogenase (G-6-PD) deficiency is most common of all clinically significant enzyme defects.[1] This deficiency is X-linked which occurs due to mutations in coding region of G-6-PD gene. Almost all of the 140 different mutations known are *single missense point* mutations.Exact incidence not known but several studies have reported incidence between 1-20%.[2] G-6-PD catalyzes first step in HMP shunt. NADPH produced keeps Glutathione in its reduced state which protects red blood cells from oxidative damage; [3] so in G-6-PD deficiency reduced glutathione will not be formed and red blood cells will not be protected from oxidative stress which will lead to haemolytic crisis on exposure to different triggers. Triggers for haemolytic crisis: Infections (viral & bacterial), Drugs (Aspirin & chloroquine), Chemicals (naphthalene[4]) & certain foods(Fava beans[3]).

Early detection and prevention of haemolytic episodes by avoiding the triggers in newborn babies is the only cure.

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Aim

To screen the neonates for glucose-6-phosphate dehydrogenase deficiency so as to prevent the morbidity and mortality occurring due to this deficiency.

Material and Methods

Site of Collection of Blood Sample

From the Labour room of Hospital, hundred neonatal cord blood samples were collected in ethylene diamine tetracetic acid (EDTA) bulb.these samples were then analysed in the laboratory by the Dye decolorization method (Qualitative).

Principle

G-6-PD present in red cell haemolysate act on glucose-6-phosphate and reduces NADP to NADPH which with the help of PMS reduces blue coloured 2, 6 Dichlorophenol Indophenol into colorless form. Rate of decolorization is proportional to enzyme activity.

Reaction can be represented as:

1. Glucose-6-phosphate + NADP ——→ 6-Phosphogluconic acid + NADPH.
2. NADPH + 2,6-Dichlorophenolindophenol ——→ NADP + Reduced 2,6-Dichlorophenolindophenol.

Interpretation

Time taken for colour change from initial deep blue to reddish purple is noted.

- Follow up to a maximum of 6 hours with 30 minute interval.
- Decolourization Time:
  1. Normal subjects : 30 -60 minutes.
  2. G-6-PD deficient subjects: 140 min - 24 hrs.
  3. G-6-PD carriers: 90 min.

Observation & Results

Total number of samples collected and examined = 100.

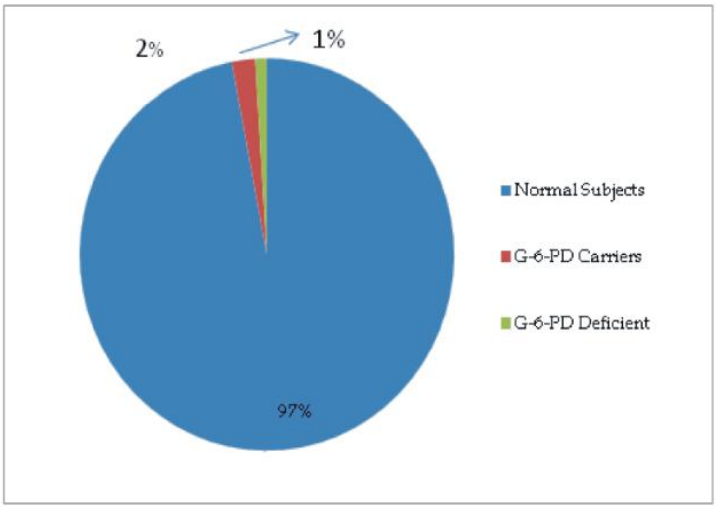
Out of 100 samples: 1 sample was found to be G-6-PD deficient (male newborn).

2 samples were found to be G-6-PD carriers (female newborn)

97 samples had normal G-6-PD levels.

Discussion

The gene for G-6-PD deficiency is located on terminal region of the long arm of the X-chromosome at position q28. It is a X-linked condition which usually manifest in males carrying mutant gene. The phenotype in



females may be normal homozygote, G-6-PD deficient homozygote or heterozygous.[5,6] Random X -chromosome inactivation result in two RBC populations in female heterozygotes.[7] Several variants of G-6-PD deficiency were encountered in different regions of India during extensive screening programmes. Different groups of researchers have evaluated the scope of G-6-PD deficiency in different regions of country.WHO has quoted the incidence of G-6-PD deficiency in India from 0.2-19%.In other studies e.g; Deshmukh *et al* study and Nishi Madan *et al* study incidence of G-6-PD deficiency was 6% and 1.37% respectively.[8] Various incidences of G-6-PD deficiency in various subjects may be due to differences in Screening test solution and associated incidence of Malaria and Haemoglobinopathies in various regions.[9] Calculating the sensitivity and specificity of this screening method is out of scope of this study, but based on previous reports the neonatal cord blood G-6-PD deficiency screening had acceptable sensitivity(85.7) and high specificity(98.1%).[10]

Conclusion

The early characterization of G-6-PD deficiency provides an etiological diagnosis for neonatal jaundice, as well as the opportunity to give the newborn's family information concerning the prevention of complications and mortality associated with G-6-PD deficiency. Considering its high incidence in our country, a neonatal screening programme for G-6-PD deficiency should therefore be taken into account in the National Health Schemes.

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Original Article

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Paediatric Twenty

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Abstract

Paediatric Twenty 20 is Latest concept enlighting on problems that paediatrician is going to face in upcoming years till 2020. Paediatric Twenty 20 encircles all age group starting from birth as neonate and includes toddler, preschool, school, and adolescent children Because of fast and competitive life, westernization, free money, effect of media, lack of parental space the problems in coming years in pediatrics population will be brain storming to the parents, pediatricians and to the nation also. So in this topic we will see the next ten years (2020) of pediatrics practice.

Keywords: Pediatrics; Year-2020; Child; Problems; Parenting.

Introduction

Paediatrics as a separate specialty is very young in India. Since last 40-50 yrs this branch had started functioning separately, though the reference may go up to Vedas. And in this young branch the youngest population of the world is included, which are very prone to physical, mental, social, geographic, political, religious changes. These multifactorial parameters are affecting these developing brains. As a pediatrician we have to think of the short term as well as long term effects on childhood population.

As Problems of neonats ,infants are declining these days with infant mortality rate of 64.9 in year 2000 to current rate of 46.07 per 1000 live births in 2013, with decreasing trends of female faeticide and sex determination. Adolescent age group is most vulnerable to changing trends fast and competitive life, westernization, free money, effect of media, lack of parental space the problems in coming years So in this topic we will see the next ten years 2020 problems of pediatrics practice specially on adolescence age group.

Maternal Health Problems

Safe motherhood begins before conception with good nutrition and a healthy lifestyle. It continues with appropriate prenatal care and preventing problems if they arise. The greatest threat was maternal mortality, Although a high number, this was a significant drop from 1980. This improvement was caused by lower pregnancy rates in some countries; higher income, which improves nutrition and access to health care; more education for women; and the increasing availability of "skilled birth attendants" — people with training in basic and emergency obstetric care — to help women

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give birth. The situation was especially led by improvements in large countries like India and China.[1]

Whereas lower education rate continues to be major problems in rural mothers. Current problem is servicing mothers in Urban zone who during her pregnancy is not able to take proper physical and mental rest give that results in increase chances of premature birth. also increasing use of computers, mobile, internet etc., future science may show terratogenic effects of all these. After delivery also mother is always worried about her job security, that's why educated mothers are many times facing problem of lactation failure. As such milk letdown reflex and milk secretion totally depends on mood changes of mother.[2]

Problems in Adolescence

Adolescence is defined as a process of growing up, youth, the peroid between childhood into the wonderful period recently labelled as EPHEBIATRICS - the brief excitingperiod of youth and maturity.[3]

Adolescent (age group 13-19 years) comprise 22.5% of total world's population. These population is very important in building the nation. Common problems to be encountered in adolescence age group in next ten year will be.

Social Problems

Nowadays this fruitful children are wrongly under the influence of politicians' in the form of youth forums, addictions, overconfidence or over religiousness, All these and so more factors put these children under stress and shows wrong direction to their future.

Once they come under these things they are very prone for unlegel, unethical things as well as psychiatric problems.

Today's parents has very few time for parenting & to compensate that they give money to their kids. This easy money give rise to many problems in their life. Now a days children are always away from parents because of education, where there is no one to super wise crucial time of their life.

Violence such as accidents, homicide or suicide accounts for 70% off all deaths in adolescents. The suicide rates for adolescents have increased by 200%over the last decade.[4] The high incidence of suicide attempts in children and adolescent is a cause of major concern now. Though recent Indian data is not available, old figures show that 12.7% of the total suicides were committed by children and adolescents.[5]

Today's youngsters have totally lost the traditional moral values that we usually talk about and no parent is likely to accept the view that their own little area is at high risk of getting sexually transmitted infections. Unprotected sex specially paid sex is highly dangerous in term of getting STD or HIV infections.[6] Sexually transmitted disease is a higher health problem among youth in much of Asia. As many as 25% of patients attending government STI clinics in India are younger than 18 years old.[2]

In well cultured India the incidence of teenage pregnancy is 10%.[7]

Health Problems

Obesity

In India, one end we are fighting against malnutrition where as other end is alarming the emerging overweight and obesity. Childhood overweight and obesity are a global problems that are on rise. Obesity in children appear to increase the risk of subsequent morbidity, hypertension,type 2 diabetes mellitus, myocardial infarction, psychiatric problems etc.

According to W.H.O. 22 million children (under 5 years age) are overweight. The prevalence of overweight children has increased from 5% to 11%.[8]

As per one study 6.2% children in India are obese and another 8.4% are overweight. World wise 27% of children are overweight and 17% are obese. That means obesity has become an important medical problem in children and adolescents.[9]

Hypertension

In infancy and childhood is rare, though it is now a recognized concept that roots of essential hypertension extends back into childhood, with persistence of rank order with age, a concept known as 'tracking'. Hypertension in children is often secondary to an identifiable etiology, predominantly renal or vascular disease. However as a result the more frequent routine blood pressure recording in children, hypertension is being increasingly diagnosed. The frequency in healthy newborn is about 0.2% it increases to about 1% in the first decade of life and even more in adolescence.[10]

But days are not far away that essential hypertension will peep the pediatricians door. The alarming signals are ringing in the form of overweight, obesity, school stress, toppers in all examinations, strong family history etc.

Childhood Tuberculosis

In the history of human civilization, seldom single disease received so much attention as tuberculosis. In spite of so many advances in diagnosis and antitubercular drugs, today one third world's population is infected with mycobacterium tuberculosis. This pool is ever growing with 8-9 million new cases of tuberculosis occurring every year. The death rate due to tuberculosis is as high as 2-3 million deaths worldwide per year. In India more than 40% of our population is infected with same disease. The number the under 5 children exposed to tuberculosis due to contact with open bacillary adult case is as high as 40 millions, of them about 3.5 million under 5 children are infected and by the time of reaching 6 yrs almost 40% of children have already developed infection. That means today also there is quite high load of tuberculosis in India, which affects childhood nutrition, school performance and health.[11]

Diabetes and Convulsion Disorder

Among youth ages younger than 10 years, the rate of new cases was 19.7 per 100,000 each year for type 1 diabetes and 0.4 per 100,000 for type 2 diabetes. Among youth ages 10 years or older, the rate of new cases was 18.6 per 100,000 each year for type 1 diabetes and 8.5 per 100,000 for type 2 diabetes.[12]

The diabetic child is not difficult to manage. As a rule, the diabetic adult is a relatively stable individual who, if he does not become overweight, presents relatively few problems. But the adolescent diabetic can be "dynamite". To the variables of exercise and diet are suddenly added rapid growth, a rapidly changing hormone structure, rebellion against the realities of a handicapping condition and a "Why did this have to happen to me?" frame of mind. The co-operation of the adolescent diabetic is all-important if complications are to be avoided. If the physician has not already made sure that his little patient understands his disease and has healthy, realistic but optimistic approach to its various problems, then he had better lose no time in making sure this defect in management is set right. This is the time to discuss the probable effect of rapid growth on insulin and diet requirements, the ways and means of minimizing the few restrictions which are necessary, viewing the disease in perspective with other much more handicapping conditions, and reminding the patient of all he can accomplish provided he adheres to the "diabetic life". The physician must be an evangelist as well as a doctor.[13]

Children with Diabetes and Epilepsy

45,000 children under the age of 15 develop epilepsy each year and this incidence is increasing as years passes.

The epileptic child presents special problems. Most are normally endowed intellectually and do quite well in regular school classes. Nevertheless, even these children have problems imposed by the uncertainties associated with their disease. With regular medical supervision and good control of attacks with anticonvulsants, their difficulties are few. Even these need encouragement, support and a sympathetic discussion of their problem so that they can face the future with courage and con-

fidence. The physician responsible for the medical care of an adolescent with epilepsy must do more than prescribe drugs and change drug dosage at each visit. He must create opportunities for frank discussion with the teenager, stressing the potentialities he possesses for success in later life and outlining the limitations in a sympathetic and tactful manner.[13]

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A Pilot Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge, Attitude & Practices towards Prevention of Acute Respiratory Tract Infection among the Mothers of Under-Five Children

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Abstract

In any community, mothers and children constitute a priority group. They comprise approximately 70% of the population of the developing countries. In India women of the child bearing age (15-44yrs) constitute 19% and children less than 15yrs of age about 40% of the total population. The experimental study was conducted to evaluate the effectiveness of structured teaching programme on knowledge, attitude and practices regarding prevention of acute respiratory tract infection among mothers of under-five children.

The study was conducted at Hebballi agasi and Rayapur urban slums, comes under UHC, Dharwad district, Karnataka. Totally 60 mothers of under five children were selected by non-probability convenient sampling technique. The knowledge was assessed by using structured interview schedule.

The study results reveals that the percentage of gain in knowledge, attitude and practice scores was 24.59%, 29.95%, and 34.33% in experimental group and 0.7 %, 0.42%, and 2.6% in control group respectively. There was no significant association between pretest knowledge, attitude and practice and socio-demographic variables. The study concludes that structured teaching programme was effective in improving the knowledge, attitude and practice of mothers of under-five children.

Keywords: Mothers of under-five children; Respiratory tract infection; Structured teaching programme.

Introduction

The future of any family, community and nation together with its culture and traditions are its children. Their energy and hope inspires the older generation.

It is sad to learn that in our global community, almost 10.5 million children die every year i.e, 30,000 children die a day, means 21 children die in a minute of the everyday before reaching their 5th birthday due to various infections. 90% of these under-five children have died due to ARI.[1]

Acute respiratory tract infection (ARI) in children less than five years old is the leading cause of childhood mortality in the world. WHO estimated that the annual number of ARI- related deaths in this age group was 2.1 million, accounting for about 20% of all childhood deaths. Acute Respiratory Infection is the most common cause of hospitalization and death in children living in developing countries.[2] In the developing countries out of ten, seven deaths in under 5 children are due to ARI.[3] While the magnitude of the problem of Acute Respiratory infections & its implications were not recognized until recently, major developing countries has now realized the need to focus attention on this

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problem. In our country too, ARI constituent a serious health problem. They are responsible for 20-30% of death amongst under-five years of age & mortality in this age group constitutes nearly 47% of total mortality in India. The morbidity 3-7 attacks of illness per year, due to ARI are already significant. ARI are the cause for 30-50% pediatrics outpatient departments. These figures are the results of complex interplay of socioeconomic, educational, nutritional, environmental factors and 12-35% of in patients.[4,5]

WHO has targeted to reduce global under-five mortality in 1990s from 93 per 1000 children to 15 per 1000 children by 2015.

Acute respiratory infection is the most common cause of hospitalization & death in children living in developing countries. A report by Director General of Health Services, Government of India, indicated that ATI contributes towards about one forth to one third of all under-five deaths in India and is stands at 52nd rank in the global scenario of under-five morality in the world.[6]

Lack of appropriate monitoring in control programme has caused death of about 20 to 30 % of its population in Pakistan. Most of the deaths in children of under-five were caused by pneumonia and bronchiolitis.[2]

Pneumonia contributes a major portion of under-five deaths in the global scenario and this mortality is mainly due to inability of mother's knowledge to distinguish pneumonia with other respiratory Infections. Health education on prevention of acute respiratory tract infection helps the mothers to bridge the identified gap of knowledge, attitude and practices towards ARI and in turn reduces the under-five mortality and morbidity.[7] Health education can change health care seeking behaviours and attitudes of parents and other family members to care other family members to take care during acute respiratory infections.[8]

The nurses and allied health care professionals plays an important role to bring global awareness to prevent acute respiratory tract infection among mothers of under-five by assessing their existing child rearing practices towards prevention of ARI.

Materials and Methods

The present experimental study was carried out among 60 mothers of under five children who belong to Hebballi, Agasi and Rayapur urban slums, comes under Urban Health Centre, Dharwad district selected through convenient sampling technique and divided in experimental and control group respectively. Evaluative approach was considered the appropriate for the present study. The Independent variable is Structured Teaching Programme and Dependent variables are knowledge, attitude and practice of mothers of under-five children. The data was collected through Structured Interview Schedule to assess the knowledge, attitude and practices regarding prevention of acute respiratory tract infection among the mothers of under-five children. The collected data was coded and entered into statistical package for the social sciences (SPSS). The interpretation of the collected data was done by using appropriate statistical methods like descriptive and inferential statistics.

Results

Major findings of the study were as follows:

The Findings Related to Socio-Demographic Variables of Subjects

Majority of the subjects 13 (43.33%) belonged to age group 26 to 30 years in both control and experimental group. Majority of the subjects 15 (50%) had only one child in control group and majority of subjects 13 (43.33%) had single child in experimental group. Majority of the subjects 12 (40%) belonged to the extended and nuclear family in control group and maximum number 15 (50%) belonged to the nuclear family in experimental group. Majority of subjects 26 (86.67%) were house wife's in control group

and maximum number 18 (60%) were house wife's in experimental group. Majority of subjects 7 (23.33%) had income between Rs. 3001 to 5000 in control group and maximum number 11 (36.67%) had income less than Rs. 1500 in experimental group. Majority of the subjects 9 (30%) were graduates in control group and majority of subjects 8 (26.67%) had PUC level education in experimental group. Majority of the subjects 19 (63.33%) belonged to the Hindu religion in control group and maximum number 15 (50%) belonged to the Hindu religion in experimental group. Majority of subjects 22 (73.33%) and 27 (90%) were not exposed to any health education programme in control and experimental group respectively.

1. The findings related to Pre-test and post test percentage of knowledge, attitude and practice score of subjects in different items of Acute respiratory tract infection.

Table 1 reveals that the percentage of gain in knowledge, attitude and practice scores was 24.59%, 29.95%, and 34.33% in experimental group and 0.7 %, 0.42%, and 2.6% in control group respectively.

Table 2 reveals that in pre-test majority of subjects 19 (63.33%) had average knowledge; 4 (13.33%) had good knowledge and 07 (23.33%) had poor knowledge, and in post test 21(70%) had good knowledge, 09 (30%) had average knowledge and none of them had poor knowledge in the experimental group. Whereas in control group majority of subjects 16 (53.33%) had average knowledge, 08 (26.67%) had poor knowledge and 6 (20%) had good knowledge in pre-test and in the post-test majority of subjects 18 (60%) had average knowledge and 6 (20%) had good knowledge and 6 (20%) had poor knowledge.

Table 3 reveals that in pre-test majority of subjects 24 (80%) had favourable attitude; 4 (13.33%) had positive attitude and 02 (6.67%) had negative attitude, and in post test 16 (53.33%) had positive attitude, 14 (46.67%) had favorable attitude and none of them had negative attitude in experimental group. Whereas in control group majority of subjects 15 (50%) had favourable attitude, 12 (40%) had negative attitude and 3 (10%) had positive attitude in the pre-test and in the post-test majority of subjects 17 (56.67%) had

Table 1: Pre-Test and Post Test Percentage of Knowledge, Attitude and Practice Score of Subjects in Different Items of Acute Respiratory Tract Infection

$n_1+n_2 = 60$

Items	Total Score	Mean % of scores of subjects					
		Experimental Group		Control Group		Exp. Gp.	Cntl. Gp.
		Pre test (x)	Post test (y)	Pre test (x)	Post test (y)	Gain in knowledge (y-x)	Gain in knowledge (y-x)
Knowledge	720	47.63	72.22	47.36	48.06	24.59	0.7
Attitude	3300	42.78	72.73	40.82	41.24	29.95	0.42
Practice	1500	45.07	79.4	44.93	47.53	34.33	2.6

Table 2: Frequency and Percentage Distribution of Knowledge Score of Subjects Regarding Acute Respiratory Tract Infection

$n_1+n_2 = 60$

Knowledge Scores	Experimental Group				Control Group			
	Pre test		Post test		Pre test		Post test	
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)
Good	4	13.33	21	70	6	20	6	20
Average	19	63.33	9	30	16	53.33	18	60
Poor	7	23.33	0	0	8	26.67	6	20

Graph 1: Bar Graph Showing Percentage Distribution of Knowledge Scores of Subjects Regarding Acute Respiratory Tract Infection in Both Experimental and Control Group

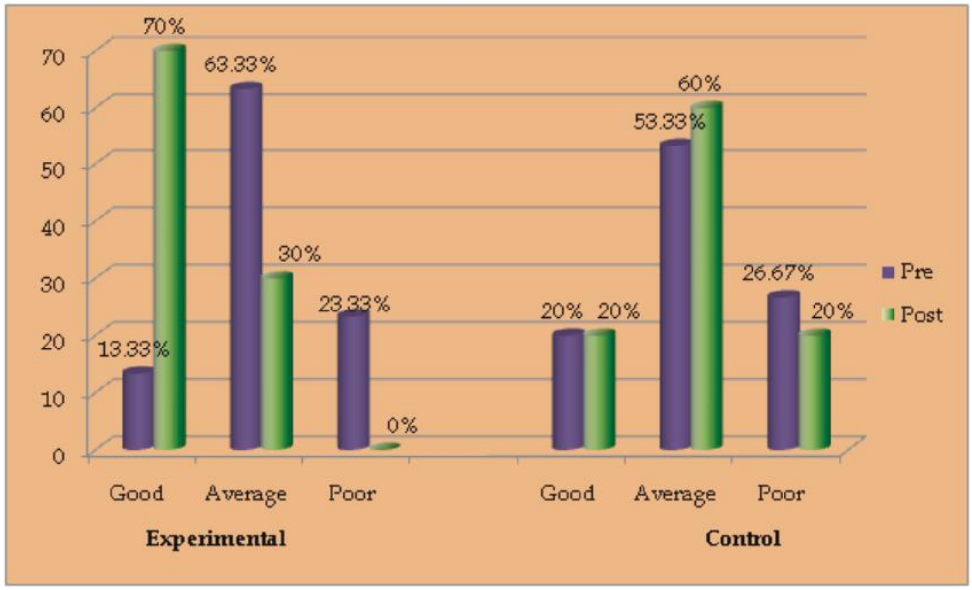

Table 3: Frequency and Percentage Distribution of Attitude Score of Subjects Regarding Acute Respiratory Tract Infection

$n_1+n_2 = 60$

Attitude Scores	Experimental				Control Group			
	Pre test		Post test		Pre test		Post test	
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)
Positive	4	13.3	16	53.33	3	10	5	16.67
Favourable	24	80	14	46.67	15	50	17	56.67
Negative	2	6.67	0	0	12	40	8	26.67

Graph 2: Bar Graph Showing Percentage Distribution of Attitude Scores of Subjects Regarding Acute Respiratory Tract Infection in Both Experimental and Control Group

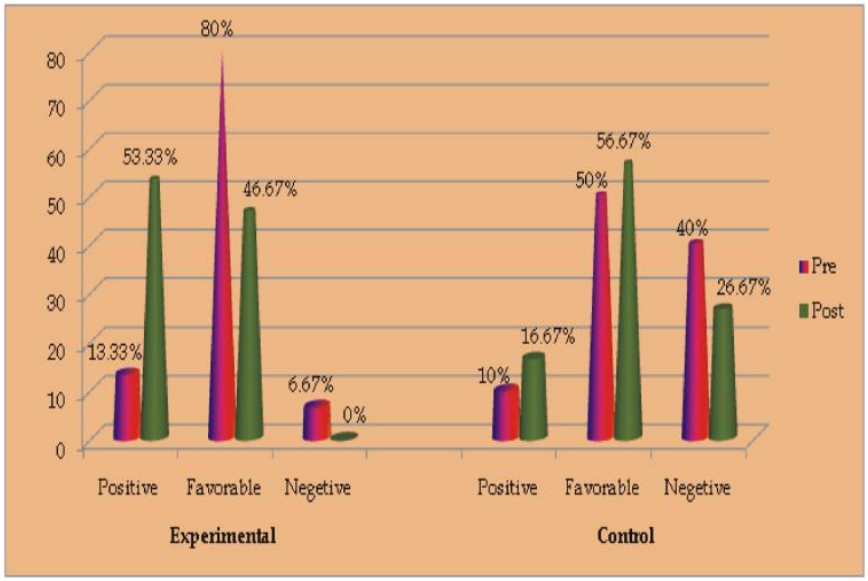

Table 4: Frequency and Percentage Distribution of Practice Score of Subjects Regarding Acute Respiratory Tract Infection

$n_1+n_2 = 60$

Practice Scores	Experimental Group				Control Group			
	Pre test		Post test		Pre test		Post test	
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)
Good	11	36.67	17	56.67	9	30	13	43.33
Average	14	46.67	13	43.33	12	40	10	33.33
Poor	5	16.67	0	0	9	30	7	23.33

Graph 3: Bar Graph Showing Percentage Distribution of Practice Score of Subjects Regarding Acute Respiratory Tract Infection in Both Experimental and Control Group

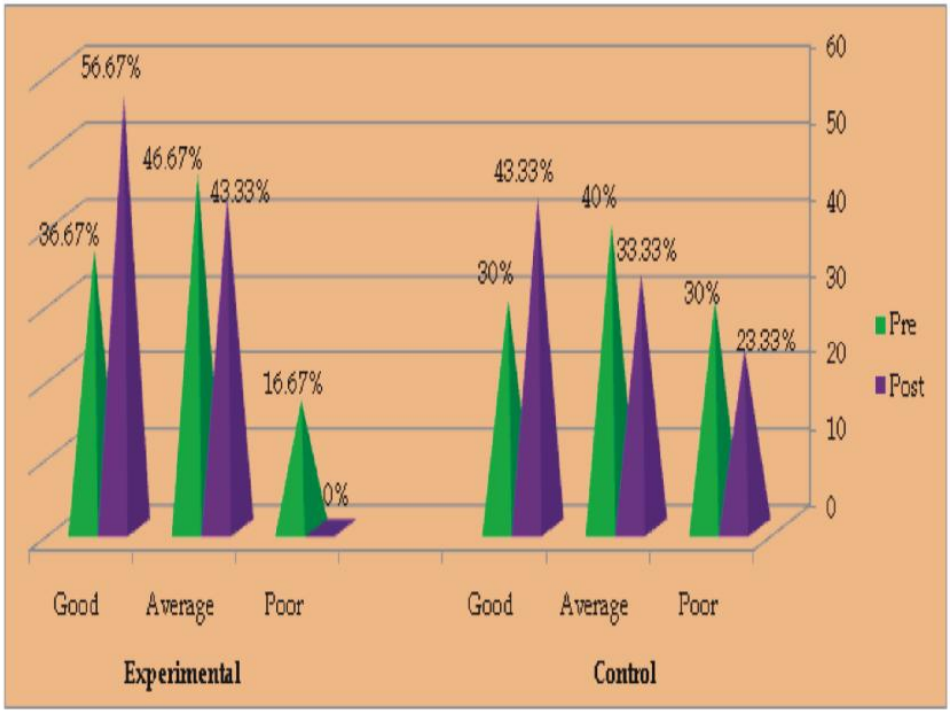

Table 5: Mean Difference ($\bar{d}$), Standard Error of Difference (SED) and Paired 't' Values of Knowledge Scores of Subjects of Experimental Group

$n_1=30$

Domains	Mean difference (d)	Standard Error of difference (SED)	Paired 't' values	
			Calculated	Tabulated
Knowledge	5.93	0.3	107.57	1.96
Attitude	32.93	5.69	31.64	1.96
Practice	17.17	3.86	244.32	1.96

favourable attitude and 8 (26.67%) had negative attitude and 5 (16.67%) had positive attitude.

Table 4 reveals that in the pre-test majority of subjects 14 (46.67%) had average practice, 11 (36.67%) had good practice, and 05 (16.67%) had poor practice, and in the post test 17(56.67%) had good practice, 13 (43.3%) had average practice and none of them had poor practice in experimental group. Whereas in control group majority of subjects 12 (40%) had average practice, 09 (30%) had poor practice, and 9 (30%) had good practice in the pre-test and in the post-test majority of subjects 13 (43.33%) had good practice, and 10(33.33%) had average practice and 07(23.33%) had poor practice scores.

Findings Related to Evaluation of Effectiveness of STP

H_1: Mothers of under-five children will demonstrate significantly higher mean post test knowledge, attitude and practice scores as compared to their mean pre-test scores at 0.05 level of significance in the experimental group as compared to control group.

Table 5 depicts that the calculated paired 't' test values in knowledge, attitude and practice was greater than the tabulated value i.e 107.57, 31.64 and 244.34 > 1.960 in the experimental group. Hence $H_1$is accepted. Hence structured teaching programme was effective in improving knowledge, attitude and practice of mothers of under five children.

Conclusion

Based on the findings of the study, the following conclusion was drawn:

Overall pre-test knowledge, attitude and practice was average both in experimental and control group, which suggested the need for structured teaching programme for mothers of under five children regarding acute respiratory infections. Post test results showed that there is a significant improvement in the level of knowledge, attitude and practice in experimental group but no significant improvement in control group. Hence, it can be concluded that structured teaching programme was an effective method of teaching the mothers of under five children regarding prevention of acute respiratory tract infection. Pretest results revealed that the sociodemographic variables didn't have statistical association with knowledge, attitude and practice of mothers of under five children in both in experimental and control group respectively.

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Review Article

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Study of Prevalence of Hypertension in School Children Aged 6 to 15 Years in Gulbarga City

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Abstract

Objectives : (1)To know the prevalence of hypertension in school children in Gulbarga city.(2)To know the relation of blood pressure with variable like sex, weight, height, socioeconomic status and family history. **Methods:** Two readings of blood pressure were recorded and mean was calculated. The children were labelled as hypertensive, if the blood pressure was above 95th percentile for that age, height and sex. **Results:** The overall prevalence of hypertension was found to be 3.9%. Blood pressure found to increase with age, weight and Height. **Conclusion:** Children with risk factors should be followed up for modification of risk factors.

Keywords: Hypertension; School children; Larger weight; Socioeconomic status; Family history.

Introduction

Hypertension is a major health problem in developed & developing countries affecting approximately 1 billion individual's world wide.[1] Children with upper percentile of blood pressure levels are more likely to become hypertensive in adult. If the trend towards adult hypertension can be recognized in childhood, it may be possible to alter life style and prevent systemic hypertension as well as related complication.[2] The present study was taken up to know the prevalence of hypertension in school children in the age range of 6 to 15 years in Gulbarga city, Karnataka and to determine the influence of contributory factors like age, sex, body weight, height, socio-economic status and parental history of hypertension. So that this can be a reference for blood pressure norms for children of Gulbarga city.

Methods

The present study is a cross sectional study undertaken in three schools of Gulbarga city, Karnataka. A total of 2000 children aged 6-15 years were enrolled in the study and a questionnaire was used to collect information on subjects consisting of age, sex, type of family, socioeconomic status, history of renal disease, cardiac disease, family history of hypertension, anthropometry, blood pressure was recorded in sitting position in right arm by auscultatory method using a standard mercury sphygmomanometer with appropriate sized cuff covering about 2/3 of the upper arm and encircling it completely. Two measurements were taken at interval of

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two minutes each and average of the two readings was calculated.The children were labelled as hypertensive, if the blood pressure was above 95th percentile for that age, height and sex were evaluated by two subsequent measurements taken during two different visits at weekly intervals before labeling them as hypertensive. Children having persistently elevated BP on three occasions were subjected to the following investigations to rule out secondary causes of hypertension. Complete blood count, Urine-albumin, sugar, microscopy and specific gravity, Lipid profile, Renal profile-Blood urea, serum creatinine and renal ultrasound, Cardiac profile-Chest X Ray, ECG, Echocardiogram. Statistical methods included calculation of age and sex specific means and standard deviation (sd) for systolic and diastolic blood pressure, correlation coefficient and 't' test for significant difference in blood pressure between groups.

Results

Two thousand, apparently normal school children, between 6-15 years of age were studied. Out of these 1156 were boys and 844 were girls. The BP for each age group was taken and the children were labeled hypertensive, if the blood pressure was above 95th percentile for that age, height and sex. The mean systolic pressure and mean diastolic pressure were found to increase with increasing age with a spurt in SBP at 13 yr in both the sexes as shown in Table 1.

On the other hand there was no significant difference between the SBP as well as DBP of the two sexes at various age groups except for the significant difference between SBP of the both sexes at 12 and 15 years and between DBP at 12 years of age. Systolic and diastolic blood pressures were found to have significant correlation with weight and height and hence with weight/height ratio in both sexes ($p<0.01$). Blood pressure was higher in high socio-economic status ($p<0.01$). Children with family history of hypertension have significantly higher blood pressures than children without family history ($p<0.001$).

Discussion

In all the studies in India[3-6] and abroad[7,8] it has been shown that blood pressure, both systolic and diastolic, gradually increases with age, although such an increase is not a steady one. The findings of the present study are in agreement with the above statement.

The systolic spurt observed in the present study between 13-14 years in both sexes has been supported by other workers. However

Table 1: Correlation between Blood Pressure Status and Sex in Different Age Groups

Age	Systolic Pressure		Diastolic Pressure	
	Boys Mean±SD (mm Hg)	Girls Mean±SD (mm Hg)	Boys Mean±SD (mm Hg)	Girls Mean±SD (mm Hg)
6	96.07±5.95	95.97±5.1	63.28±4.42	62±3.77
7	98.05±6.08	97.48±6.01	63.83±4.64	63.63±5.36
8	101.13±5.4	100.23±5.35	65.1±5.5	65.49±5.37
9	101.81±6.07	102.02±6.34	65.6±6.09	65.5±4.93
10	104.27±6.09	104.23±6.12	65.8±4.95	66.48±6.28
11	105.13±6.69	105.18±7.49	68.18±6.65	67.89±4.78
12	105.82±6.53	108.02±6.58	68.24±4.59	68.7±3.39
13	107.8±7.39	108.08±7.64	68.3±4.85	69.05±4.63
14	111.39±6.78	110.94±6.53	71.23±4.49	72.13±3.68
15	114.58±4.96	112.15±5.95	73.36±4.21	72.76±4.19

Table 2: Prevalence of Hypertension in Various Studies

Present study	3.6%
Rakesh Agarwal, SL Mandowara, B. Bhandari and Garg OP (1982)[5]	2.6%
Agarwal V.K., Rajiv Sharan, Shrivastava AK and Pandey CM (1983) [4]	1.8%
Chahar CK, Shekhawat V, Migalani N and Gupta BD (1983)[6]	1.39%
Sachdev (1984) [9]	0.54%
Laroia, M Sharma, V. Diwedi, KM Belapurkar and PS Mathur (1989)[12]	2.93%
Anand N.K. and Lalit Tandon (1996)[3]	0.46%
Chada .S.L,tandon R,Gopinath N(1999)	11.6%
Avinash Sharma,Neelam Grover,Rajiv bharadwaj(2006)[11]	5.9%

Task Force Committee USA reported only one spurt between 5 and 6 years in both the sexes. The spurt may possibly be due to certain hormonal and physical changes occurring in the body at adolescence. The blood pressure levels in the present study were considerably lower, both systolic and diastolic pressures, in either sex than the findings in other Indian studies. Even in the Western studies similar differences have been observed, the difference between NIH Task Force readings and Bogalusa heart study being 10-15 mm Hg, with considerably higher level reported in the NIH report.[7,8]

The differences between the present study and other Indian studies can be explained by the fact that the mean body weight and height were higher in other studies in the comparable age groups, which are the main determinants of blood pressure in growing children. In the present study it has been seen that the mean systolic and mean diastolic blood pressures increase steadily and proportionately with weight. Similar observations have been made by other workers.[4-6] There is a strong correlation between blood pressure and weight as well as blood pressure and height in both sexes. There is no significant difference in blood pressures of the two sexes when the values are corrected for maturation status. In the present study it was seen that there were significant differences in the mean blood pressure levels (both systolic and diastolic) of children from class I and class II socio-economic groups in contrast to Agarwal *et al*[5] study and Sachdev[9] *et al* study which showed no association between socio-economic status and levels of blood pressure. Children with family history of hypertension have significantly higher blood pressures than children without family history. Similar observation was made by Roya Kelishadi, Mahin Hashemipour, Nasrollah Bashardoost.[10]

The prevalence of hypertension in study population was 3.9% (n=78). The prevalence reported in various other studies ranged from 0.54 to 11.96%[3-6,11-14] (Table 2).

The vast majority of these children will have mild elevation of blood pressure and labeled as essential hypertensives.[15] The observation of the present study are in agreement with the above statement as all the 78 children who were labelled as hypertensives had only mildly elevated blood pressure and none had severe elevation of blood pressure (> 99th percentile).

Conclusions

The overall prevalence of hypertension was found to be 3.9%. Blood pressure, both systolic and diastolic gradually increases with age, the increase being more pronounced in systolic blood pressure than in diastolic blood pressure. There is a strong correlation between blood pressure and weight, height and weight/ height ratio in both sexes. Larger weight children, high socioeconomic status and family

history of hypertension in children are associated with elevated blood pressures and children may be at risk for developing hypertension at a later date. They should be followed up and considered for modification of risk factors.

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Atypical Clinical Manifestation in a Child with Vein of Galen Malformation: Case Report

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Abstract

Vein of Galen aneurysmal malformation (VGAM) is a pediatric intracranial vascular abnormality that is characterized by multiple arteriovenous shunts draining into a dilated median prosencephalic vein of Markowski.[1] The varied clinical presentations and their distinctive and complex angio-architecture make it important for the caring physician to understand the correlation. Most cases present in neonatal life with congestive cardiac failure. We report a rare case of aneurysm of vein of Galen diagnosed in a toddler with initial manifestation mimicking neuro-regressive disorder.

Keywords: Vein of galen malformation; Neuro-regression; CT angiography.

Case Report

An 18 months old male child was apparently alright with normal milestones till 9 months of age when he had an episode of complex partial seizure involving right side of body for which treatment was taken, after which patient stopped sitting on his own. At 11months of age patient went into status epilepticus for 12 hours. seizures started as focal convulsion on right side of body with secondary generalization associated with loss of consciousness for 1 day, for which patient was admitted and managed. Over next 6-7 months patient had lost all the achieved milestones (lost turning over at 13months of age, the ability to pick up objects, waving bye-bye ,and recognizing mother and father at 14months of age). He also stopped responding to sound and stopped talking around 15months of age. Now the patient lies in supine position with stiffening of both upper and lower limbs in flexeded position, cries intermittently, with poor oral intake.

On examination patient was afebrile, vitals were normal, , head was abnormal in shape with parietal bossing, head circumference was 49cms within the 2 standard deviation for that age and sex, anterior fontanel was closed. Visible dilated veins were seen in the neck & forehead, cranial bruit was present. Continuous venous hum could be felt over the dilated veins. On CNS examination, pupils were bilaterally equal normal size reacting to light, patient did not follow light, fundus showed dilated veins with no evidence of papilloedema, gag reflex was absent , but had no cough reflex. Doll's eye reflex was present, Tone was increased in all four limbs with no involuntary movements. Pain sensation was intact, superficial reflexes were present, Babinski sign was positive. Deep reflexes were exaggerated, ankle and patellar clonus were

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present. Rest of the systems was normal.

MRI brain was suggestive of aneurysmal dilatation of vein of Galen – Choroidal type with microangiopathy predominantly in right cerebral hemisphere with obstructive hydrocephalus. Angiography was suggestive of high flow in vein of galen malformation with feeders from posterior cerebral communicating arteries which was seen in all four injections. Embolization was planned.

Discussion

The term "vein of Galen malformation," is a misnomer, because the ectactic vein has been identified as the median prosencephalic vein of Markowski—the embryonic precursor of the vein of Galen itself, which is normally absent at the adult stage.[2] Although it is a relatively rare malformation, VGAM accounts for an estimated 30% of all pediatric vascular anomalies.[3] The vein of Galen aneurysmal malformations are subdivided into two types, choroidal and mural. The choroidal type is where there are multiple shunts communicating with the anterior dilatation of the median prosencephalic vein. The mural type is where the arteriovenous shunt is in the wall of the dilated vein. The choroidal type is more common than the mural type. The presentation differs depending on the size and age at presentation. In the newborn with a large shunt, severe cardiac failure and cranial bruit are the typical signs. In an infant, an enlarging head due to obstructive hydrocephalus at the aqueduct is a common presentation. In older children, subarachnoid hemorrhage and focal neurological signs may occur.[4]

Neonates characteristically have multiple fistulas. Up to 25% of their cardiac output passes through the fistulas causing high-output congestive cardiac failure. Depending on the size of the shunt, adequacy of venous drainage, complexity of arterial supply and the host response, the cardiac manifestations can range from asymptomatic cardiomegaly to severe cardiac failure that is refractory to medical management.[4-6] Infants typically presents with milder cardiac symptoms and smaller shunts. The chief symptom associated with a diagnosis of VGAM during infancy is hydrocephalus. Non communicating hydrocephalus typically results from direct compression of the aqueduct or posterior third ventricle by a venous aneurysm, whereas communicating hydrocephalus is thought to be due to impaired CSF reabsorption by subarachnoid blood.[7] Increased head circumference and seizures are also associated with diagnosis during infancy. Older children and adults usually have low-flow fistulae. These patients usually present with headache and seizures. A small number of patients may also present with developmental delay, focal neurological deficits, proptosis and epistaxis. Subarachnoid hemorrhage and intracerebral hemorrhage can occur in this age group due to rerouting of blood into the pial veins.[3]

The differential diagnosis includes conditions such as cavum vergae, arachnoid cyst, and porencephalic cyst.[8] Left untreated, the mortality of newborns with severe cardiac insufficiency amounts to 100%, in infancy 72%. [9] The safest targeted treatment of a VGAM and also therapy of choice is the endovascular embolization—primarily transarterial using a special kind of glue.[10-12] Higher rates of complications and mortality are described for other therapeutical methods (transvenous embolization, surgical treatment).[13] Time and method of endovascular embolization depends on clinical signs and symptoms of the patient.[14,15]

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Methemoglobinemia: A Case Report

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Abstract

Methemoglobinemia refers to the oxidation of ferrous iron (Fe++) to ferric iron (Fe+++) within the hemoglobin molecule.[1] This reaction impairs the ability of hemoglobin to transport oxygen and carbon dioxide, leading to tissue hypoxemia and in severe cases, death. Methemoglobinemia most commonly results from exposure to an oxidizing chemical, but may also arise from genetic, dietary, or even idiopathic etiologies.[2,3]

This case report describes the development of acquired methemoglobinemia in a 2 years old boy after accidental ingestion of Blue Detergent Dye , we are reporting this case because of these disparate causes, confusion may arise in the recognition and management of methemoglobinemia. Physicians may be aware of one etiology, such as dietary nitrites in well water, but may be unfamiliar with others, such as the ingestion Blue dye- ultramarine blue, chemical composition sodium aluminosulfosilcate, commonly used as fabric whitener in India.

Key words: Methemoglobinemia; Blue dye;Ultramarine blue; Methylene blue.

Introduction

Methemoglobinemia is a condition in which ferrous iron within hemoglobin is oxidized to ferric iron resulting in impaired oxygen and carbon dioxide transport leading to cyanosis. This ferric state leads to the formation of methemoglobin that causes brownish discoloration of the blood. In healthy normal children, the ferric iron is reduced to ferrous state by the aid of cytochrome b5 oxidase (methemoglobin reductase) along with other systems such as NADH reductase, glutathione reductase and Glucose-6-phosphate dehydrogenase (G-6-PD). Normal concentration of methemoglobin is maintained below 1% in healthy individuals by these enzyme systems.[4]

Methemoglobinemia occurs as an acquired or congenital variant. Acquired methemoglobinemia is more common and occurs from exposure to oxidizing agents such as nitrates, nitrites, aniline dyes and medications such as lidocaine, prilocaine antimalarials. Pyridium etc.[5] Congenital methemoglobinemia is due to either presence of altered hemoglobin (Hemoglobin M) or NADH reductase deficiency. Patients with congenital methemoglobinemia are generally asymptomatic other than cyanosis from birth.

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Acquired methemoglobinemia is usually mild but can be severe depending upon the cause and can present with cyanosis, dyspnea, lethargy-headache, dizziness and deterioration of mental functioning. A history of exposure to a known toxin or drug may be elicited.

Case Report

A 2 years old male child was brought with complaints of vomiting 5-6 episodes/day since 5days, fever since 2 days , bluish discoloration of skin since 2 days, 3 episodes of convulsion since 1 day and altered sensorium since the episodes of convulsion. There was history of ingestion of blue dye 4 days back, the blue dye is commonly used as detergent for washing white clothes in india. There was no history of cyanosis in the past. On general examination cyanosis was present, severe pallor was also present, patient was afebrile, tachycardia, tachypnoea, blood pressure was within percentile for that age and sex, SPO2 was 78% on room air on admission, even after the administration of oxygen there was no significant change in SPO2. On systemic examination lungs were clear , liver was enlarged 3cms below right coastal margin span was 8.5cms,spleen was just palpable, GCS was 11/15, pupils were normal size bilaterally equal reacting to light. Investigation showed, arterial blood- dark brown, Hemoglobin was 4.1g/dl, ABG showed PaO2 of 97 mmhg on room air, oxygen saturation-88%, Methemoglobin level, measured on admission was elevated at 48.5 %, IV methylene blue (1-2 mg/kg) was given and was repeated after 6 hours with the same dose. Methemoglobin level was reduced to 1.25 % after 3 days of treatment.

Discussion

Methemoglobinemia can be easily diagnosed by pulse oximetry. The severity of cyanosis does not correspond to the pulse oximetry reading. The patient may appear extremely cyanotic but have a pulse oximetry reading in the high 80s. The arterial blood sample will show a normal PaO2 though the blood is chocolate brown. This blood when exposed to 100% oxygen continues to remain brown while deoxygenated blood changes to bright red. The diagnosis and severity of methemoglobinemia can be determined by methemoglobin levels. Methemoglobin levels greater than 1% are normal and symptomatic individuals usually have levels greater than 40-50%.[6]
Treatment consists of IV methylene blue (1-2 mg/kg) as a 1% solution over 5 minutes, repeated in our hour if necessary if methemoglobin levels are greater than 30%. Methylene blue is contraindicated in patients with G-6-PD deficiency as it can lead to severe hemolysis. Methylene blue is an oxidant at levels greater than 1 mg/kg and therefore can cause methemoglobinemia at higher doses. Ascorbic acid (200-500 mg) is found useful in congenital methemoglobinemia when methemoglobin level is above 30%. Rarely exchange transfusion may be required. Patients with acquired methemoglobinemia should avoid future exposure to precipitating agent.[7]

Ultramarine is a blue pigment consisting primarily of a zeolite-based mineral containing small amounts of polysulfides. It occurs in nature as a proximate component of lapis lazuli. Ultramarine is the most complex of the mineral pigments, a complex sulfur-containing sodio-silicate ($Na_{8-10}Al_6Si_6O_{24}S_{2-4}$) containing a blue cubic mineral called lazurite (the major component in lapis lazuli).[8] The available information indicates that ultramarine blue is insoluble in water and is not readily absorbed by any route of exposure. The only effects noted in any of the studies were effects consistent to those of other siliceous earth materials. The available toxicity information indicates that ultramarine blue is of low or no toxicological concern. Additionally, given its use as a colorant, the amount of ultramarine blue that would be incorporated into any pesticide product is limited by the need for a certain shade or hue of blue. Therefore, EPA concludes that use of ultramarine blue in pesticide products as a colorant is not likely to pose a dietary risk under reasonably foreseeable circumstances.

There is a reasonable certainty of no harm to the general population, including infants and children, from aggregate exposure to residues of ultramarine blue.[9]

We are reporting this first case of toxicity of ultramarine blue in infants or toddlers, no other similar case reports were found in the medical literature.

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Standard journal article

[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006;35:540-7.

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Corporate (collective) author

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Reference from electronic media

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