referred from other hospitals, difference in demographic features and antibiotic usage rates in developed and developing countries. However, we agree that it may also be due to gross differences in rates of culture positivity between two studies.

3. Invasive candidiasis is an emerging cause of neonatal sepsis; seen more in late onset group and in those who have received broad spectrum antibiotics. Few other Indian studies on neonatal sepsis [3,4] have also reported high incidence of candidemia. This could be explained by more number of extramural babies referred from other hospitals, and larger proportion of lower birth weight and preterm neonates.

4. Problem of false positivity can be overcome by time to culture positivity but our primary objective was to improve diagnostic yield of blood culture. We agree that multiple blood cultures may seem to increase the cost of treatment and manpower, but as it improves yield, it may lead to more rational antibiotic therapy in the unit. Early targeted therapy is essential for reducing the burden of neonatal sepsis. Delay in diagnosis or non-specific therapy may lead to antibiotic resistance.

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REFERENCES

1. Pammi M, Zhong D, Johnson Y, Revell P, Versalovic J. Polymicrobial bloodstream infections in the neonatal intensive care unit are associated with increased mortality: A case-control study. BMC Infect Dis. 2014;14:390.
2. Sarkar S, Bhagat I, DeCristofaro JD, Wiswell TE, Spitzer AR. A study of the role of multiple site blood cultures in the evaluation of neonatal sepsis. J Perinatol. 2005;26:18-22.
3. Rani R, Mohapatra N P, Mehta G, Randhawa VS. Changing trends of candida species in neonatal septicaemia in a tertiary North Indian hospital. Indian J Med Microbiol. 2002;20:42-4.
4. Juyal D, Sharma M, Pal S, Rathaur VK, Sharma N. Emergence of non-albicans Candida species in neonatal candidemia. N Am J Med Sci. 2013;5:541-545.

Quantum Jump in the Coverage of Mega Doses of Vitamin A Supplementation Program to Children in India

Government of India initiated the National Prophylaxis Programme against Nutritional Blindness due to vitamin A deficiency (VAD) in 1970 due to the high prevalence of VAD amongst children in the age group of 9-59 months in the country. The national scenario of VAD has changed significantly. However, the universal vitamin A supplementation is still being undertaken possibly for two benefits: (*i*) prevention of nutritional blindness due to VAD, and (*ii*) reduction in under-5 mortality rate (U5MR).

The existing scientific evidence suggests that the prevalence of Bitot's spots among preschool children have reduced to 0.3% (range 0-0.7%), and is limited to isolated geographical pockets in the country [1]. A gradual reduction has been documented in U5MR from 74 (NFHS-3) [2] to 50 (NFHS-4) during 2005 to 2015 [3].

***Table* I** presents NFHS-3 (2005-2006) and NFHS-4 (2015-2016) data on U5MR, infant mortality rate (IMR) and coverage of vitamin A supplementation in 35 states of India. The difference in U5MR and IMR amongst children is 9 (range 0 to 14), and is in the range of 0-5 in group A states. As 60% of the IMR is in the neonatal period due to causes such as accidents, genetic disorders, congenital anomalies and low birth weight, there is no biological mechanism by which vitamin A supplementation can possibly intervene and prevent these deaths. Large scale intervention studies and recent systematic reviews have also suggested that reduction in U5MR by vitamin A supplementation is negligible (2-3%) [4,5].

In spite of the strong evidence to discontinue vitamin A supplementation in the country, there has been a dramatic increase in the coverage of mega dose of vitamin A supplementation from 16% (NFHS-3) to 60% (NFHS-4) amongst children in the age group of 9-59 months (***Table* I**). The Group A states with difference in U5MR and IMR in the range of 0-5 even, have a high coverage of vitamin A supplementation.

Government of India should adopt and implement evidence-based decisions for vitamin A supplementation as it may lead to wasteful expenditure of manpower and financial resources. Also, the toxicity of mega dose of vitamin A supplementation is a cause of great concern.

TABLE I CURRENT STATUS ON INFANT MORTALITY RATE AND UNDER FIVE MORTALITY RATE AND PROGRESS OF COVERAGE OF MDVA SUPPLEMENTATION IN INDIA OVER A DECADE

Region	*Under-five mortality rate NHFS-4 (2015-2016)*	*Infant Mortality Rate NHFS-4(2015-2016)*	*Coverage of MDVA supplementation*	
			NFHS-3 (2005-2006)	*NHFS-4 (2015-2016)*
India	50	41	16.5	60.2
Group A states				
Daman and Diu	34	34	*	68.4
Goa	13	13	31	89.5
Puducherry	16	16	*	75.0
Kerala	7	6	31.5	74.4
Andaman & Nicobar	13	10	*	69.3
Sikkim	32	29	18	84.3
Himachal Pradesh	38	34	26.7	64.3
Karnataka	32	28	13.6	78.7
Lakshadweep	23	19	*	52.3
Manipur	26	22	11.2	32.1
Punjab	33	29	14.6	70.6
Telangana	32	28	*	76.3
Maharashtra	29	24	23.3	70.5
West Bengal	32	27	31.7	68.4
Group B states				
Andhra Pradesh	41	35	*	72.1
Jammu and Kashmir	38	32	12.6	64.7
Mizoram	46	40	40.2	68.6
Tamil Nadu	27	21	33.1	68.3
Tripura	33	27	28.3	62.8
Uttarakhand	47	40	12.8	36.9
Assam	56	48	12.2	51.3
Haryana	41	33	10.5	66.7
Nagaland	37	29	6.6	27.1
Dadra and Nagar Haveli	42	33	*	59.3
Gujarat	43	34	12.8	71.2
Odisha	49	40	20.4	69.1
Arunachal Pradesh	33	23	15.8	39.4
Bihar	58	48	25.1	62.3
Chhattisgarh	64	54	8.9	70.2
Jharkhand	54	44	18	52.9
Meghalaya	40	30	14.9	54.4
Rajasthan	51	41	8.6	39.6
Delhi NCT	47	35	12.6	54.2
Madhya Pradesh	65	51	12.5	60.4
Chandigarh	*	*	*	56.3

MDVA: mega dose of vitamin A.

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REFERENCES

1. National Nutrition Monitoring Bureau. Diet and Nutritional Status of Rural Population, Prevalence of Hypertension and Diabetes Among Adults and Infant and Young Child Feeding Practices-Report of Third Repeat Survey- Technical report number 26;2012.
2. International Institute for Population Sciences. National Family Health Survey (NFHS-3): India. Mumbai: IIPS; 2005-2006. Available from: *http://rchiips.org/NFHS/maharashtra_report.shtml*. Accessed July 03, 2017.
3. International Institute for Population Sciences. National Family Health Survey (NFHS-4): India. Mumbai: IIPS; 2015-2016. Available from: *http://rchiips.org/NFHS/factsheet_NFHS-4.shtml*. Accessed July 03, 2017.
4. Mazumder S, Taneja S, Bhatia K, Yoshida S, Kaur J, Dube B, *et al*. Efficacy of early neonatal supplementation with vitamin A to reduce mortality in infancy in Haryana, India (Neovita): a randomised, double-blind, placebo-controlled trial.Lancet. 2015;385:1333-42.
5. Mason J, Greiner T, Shrimpton R, Sanders D, Yukich J. Vitamin A policies need rethinking. Int J Epidemiol. 2015;44:283-92.

Cotrimoxazole-induced Methemoglobinemia

Pneumocystis jiroveci pneumonia (PCP) occurs in patients who receive immunosuppressive agents such as chemotherapeutics and prolonged steroids. Cotrimoxazole or trimethoprim-sulphamethoxazole (TMP-SMX) is the first line agent for PCP prevention, and is well tolerated at prophylactic doses. Methemoglobinemia secondary to the administration of trimethoprim-sulfamethoxazole has been reported mainly in patients who receive daily administration of the drug in therapeutic doses (4 times the prophylactic dose) [1]. We report a case of methemoglobinemia observed while on prophylactic dose of TMP-SMX.

A 6-year-old boy was admitted for rituximab infusion as treatment for refractory chronic immune thrombocytopenia (ITP). He was diagnosed to have immune thrombocytopenia three years ago, and has been on treatment with multiple courses of steroids, azathioprine, cyclosporine, eltrombopag and dapsone to which thrombocytopenia remained refractory. At the time of initiation of weekly rituximab, he was on dapsone (2 mg/kg/day) and cyclosporine (3 mg/kg/day), and platelet count was maintained around 5-10 × 10^9/L with occasional episodes of epistaxis and gum bleeding. Normal G6PD level was ensured prior to starting dapsone. He was hemodynamically stable with normal oxygen saturation (SpO_2) in room air during the first dose of rituximab. In view of having received prolonged courses of steroids, he was started on PCP prophylaxis with TMP/SMX (5 mg/kg/day of trimethoprim) thrice a week. During second week of admission, while monitoring for rituximab infusion, his SpO_2 was found to be 88% in room air. Child was comfortable with normal respiratory rate and had no cough, running nose, dyspnea, exertional intolerance, dark colored urine or cyanosis, and systemic examination was unremarkable. The possibility of methemoglobinemia as well as viral interstitial lung disease was considered; arterial blood gas analysis showed methemoglobin level of 14.9% (normal <2%) and arterial oxygen saturation (PaO_2) of 90 mmHg. Dapsone and TMP/SMX were stopped, and he was followed up clinically with SpO_2 monitoring once in 3-4 days. Hemoglobin remained constant at 11 g/dL and there was no evidence of hemolysis. Repeat methemoglobin level after two weeks was 0.3% with PaO_2 of 109 mmHg.

Methemoglobinemia following prophylactic doses of TMP/SMX is extremely rare [1,2]. Although dapsone is a well-known cause of methemoglobinemia, it did not cause any symptoms in our patient for over 6 months. The other drugs being administered (cyclosporine and rituximab) are not known causes of methemoglobinemia in usual doses. The addition of cotrimoxazole might have caused a 'dose-effect' with dapsone resulting in methemoglobinemia. Methemoglobinemia following combination of dapsone with TMP/SMX combination has been reported in HIV patients receiving these drugs in therapeutic dosage for PCP [3]. Since TMP/SMX is used very commonly in pediatric oncology and immunodeficiencies, the early recognition of this complication by SPO_2 monitoring may be warranted.

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