



**Editorial**

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**Dr. Padam Simkhada, Dr. Brijesh Sathian, Dr. Sudhir Adhikari, Dr. Edwin R. van Teijlingen, Dr. Bedanta Roy**

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# Is early diagnose for Vitamin A deficiency better than the current supplementation programme of Nepal?

Simkhada P<sup>1</sup>, Sathian B<sup>2</sup>, Adhikari S<sup>3</sup>, van Teijlingen E<sup>4</sup>, Roy B<sup>5</sup>

## Correspondence to:

p.p.simkhada@ljamu.ac.uk

<sup>1</sup>**Dr. Padam Simkhada**, Professor, Centre for Public Health, Liverpool John Moores University, Liverpool, United Kingdom.

<sup>2</sup>**Dr. Brijesh Sathian**, Assistant Professor, Department of Community Medicine, Manipal College of Medical Sciences, Pokhara, Nepal.

<sup>3</sup>**Dr. Sudhir Adhikari**, Assistant Professor, Department of Pediatrics, Manipal College of Medical Sciences, Pokhara, Nepal.

<sup>4</sup>**Dr. Edwin R. van Teijlingen**, Professor, School of Health & Social Care, Bournemouth University, Bournemouth, UK.

<sup>5</sup>**Dr. Bedanta Roy**, Assistant Professor, Department of Physiology, Manipal College of Medical Sciences, Pokhara, Nepal.

## Edited by:

Dr. A.K.Pradhan,  
KIMS, Amalapuram, India

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## Editorial

Vitamin A was the first vitamin identified and hence given the first letter in the alphabet. Vitamin A is an essential nutrient, which we can consume from plants [ $\beta$  carotene] and animals [pre-formed vitamin A] in our diet [1]. It is a fat-soluble vitamin needed for our immune system to protect us from infectious diseases [1,2]. It is also required for usual performance of the visual system, epithelial integrity, reproduction, production of red blood cells and maintenance of cell function for growth [3]. People can have too much or too little Vitamin A. Vitamin A deficiency [VAD] is caused by inadequate intake of the daily requirement of meat, eggs, fruit and vegetables, particularly where rice is the staple food (doesn't contain carotene)[4-8]. Particularly good sources are green leafy and yellow/orange vegetables and coloured fruits, the  $\beta$  carotene is absorbed better from cooked vegetables (or homogenized) and combined with oils or fat. People can also have a too high intake, referred to as Vitamin A toxicity. This is usually chronic but can also be acute due to overdose (often in children). A chronic Vitamin A overdose can cause headaches; changes in skin, hair, and nails and in pregnant mothers birth defects. Reducing the Vitamin A intake results in a return to normal apart from babies with birth defects where the damage is done. Acute toxicity of vitamin A can manifest with anorexia, pruritus, vomiting, bulging fontanelle and other symptoms of pseudotumor cerebri [9]. A too high dose of Vitamin A supplementation may affect respiratory health [10, 11] or bone health [12]. There was noteworthy raise in rate of pneumonia in well nourished children who had taken 10,000 IU of weekly supplementation[13].

The recommended dietary allowance (RDA) for vitamin A is 300 micrograms per day in children aged 3 years. The RDA for upto 12 months age group is 400-500 micrograms per day, 4-8 years is 400 micrograms [14]. VAD leads to vision problems and due to the lower immunity a variety of illnesses together with measles, diarrhoea, and respiratory infections, the latter are the principal causes of mortality among the children in low-income countries including Nepal [3, 4]. The World Health Organization has suggested vitamin A supplementation for pregnant women, breastfeeding mothers and children under 5 [15]. Infants aged 6–11 months are given 100000 units and children aged one to five years, 200000 units of vitamin A every six months as part of the National Vitamin A Prophylaxis programme in Nepal [16].

Vitamin A supplementation coverage was 78% among children age 6-11 months in the 2011 National Demographic and Health Survey. The MoHP (Ministry of Health & Population) started Vitamin 'A' distribution by giving 6 months children their first dose Vitamin 'A' Supplements (VAS) in three districts throughout 2013. This programme increased Vitamin A coverage among the children age 6-8 months from 56% during the baseline to 70% at the end line with difference in difference (DID) between intervention and control district by 7%. The VAS coverage among children aged 6-11 months in three districts remained at more than 90%. The new delivery method and its role in getting better VAS coverage among 6-8 months children was well acceptable in the Micronutrient Global Conference, 2014. Using VAS 6-11 month's programme modeling, Nepal is scaled up to a further 15 districts in 2014/2015, and 53% of postpartum mothers received Vitamin A supplements in 2014 [17]. MoHP is also intended to control the Vitamin A Deficiency (VAD) by ensuring the availability of VA capsules at health facilities, by increasing the awareness of importance of VA capsules supplementation, bi-annual distribution of vitamin A capsule to children between 6 and 59 months through FCHVs (Female Community Health Volunteers), advocating for increased home production, consumption and preservation of Vitamin A rich foods, strengthen the usage of Vitamin A Treatment protocol, promoting the consumption of VA rich foods and balanced diet through nutrition education, supplementation of Vitamin A capsule (200,000 IU) to postpartum mothers through healthcare facilities and community volunteers.

It is evident that Vitamin A prevents deaths due to Measles but the correct intervention would be to give Measles immunization not to give a mega dose of Vitamin A. Kapil et al. suggested that it is the occasion to discontinue giving indiscriminate enormous doses of synthetic vitamin A to Indian children, which has to be considered equivalent to Nepal as a neighbouring country with ethnic similarities [18]. Pant et al. conducted a three-year follow-up evaluation of the effectiveness of two approaches to Vitamin A deficiency prevention--nutrition education and mega-dose capsule distribution--with almost 40,000 children 6 months to 10 years of age in Nepal [19]. Although the effects of both programmes were equal the capsule achieved higher coverage rates at a lower expenditure while the educational intervention provided economies of scale and potential for long-term sustainability. The most practical approach would be a comprehensive national programme that included both these components as well as maternal literacy training by their study [19]. There are several systematic reviews, randomized control trials, cohort studies and commentaries published in this context but still there is no precautionary measures have been taken.

In conclusion, we agree that prevention is still better than cure, but instead of a mass Vitamin A supplementation in Nepal, we need a health promotion intervention aiming to increase the

intake of relatively cheap vegetables and fruit (containing  $\beta$  carotene). In addition we need better surveillance and help to identify children with Vitamin A Deficiency and provide them with Vitamin A supplements. The primary focus should be on adopting sustainable food based approaches to combat vitamin A deficiency.

## References

1. Bates CJ. Vitamin A. *Lancet* 1995;345(8941):31-5.
2. Green HN, Mellanby E. Vitamin A as an anti-infective agent. *Brit Med J* 1928; 2(3537):691-6.
3. Sommer A, West KP. Vitamin A deficiency: health, survival, and vision. Oxford University Press, 1996.
4. Rice AL, West KP Jr, Black RE. Vitamin A deficiency. Global and regional burden of disease attributable to selected major risk factors. Vol 1. World Health Organization, 2004.
5. Black RE, Cousens S, Johnson HL, Lawn JE, Rudan I, Bassani DG, *et al.* Global, regional, and national causes of child mortality in 2008: a systematic analysis. *Lancet* 2010;375 (9730):1969-87.
6. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, *et al.* Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008;371(9608):243-60.
7. De Pee S, West CE, Muhilal M, Karyadi D, Hautvast JG. Lack of improvement in vitamin A status with increased consumption of dark-green leafy vegetables. *Lancet* 1995;346(8967):75-81.
8. Tang G. Bioconversion of dietary provitamin A carotenoids to vitamin A in humans. *Am J Clin Nutr* 2010;91(5):1468-73S.
9. de Francisco A, Chakraborty J, Chowdhury HR, Yunus M, Baqui AH, Siddique AK, *et al.* Acute toxicity of vitamin A given with vaccines in infancy. *Lancet*. 1993;342 (8870):526-7.
10. Mathew JL, Patwari AK, Gupta P, Shah D, Gera T, Gogia S, *et al.* Acute respiratory infection and pneumonia in India: A systematic review of literature for advocacy and action: UNICEF-PHFI series on newborn and child health, India. *Indian Pediatr*. 2011;48(3):191-218.
11. Imdad A, Herzer K, Mayo-Wilson E, Yakoob MY, Bhutta ZA. Vitamin A supplementation for preventing morbidity and mortality in children from 6 months to 5 years of age. *Cochrane Database Syst Rev*. 2011 CD008524.
12. Gopalan C. Massive dose vitamin A prophylaxis should now be scrapped. *World Nutr*. 2010;1:79-85.
13. Shah D. Does vitamin A supplementation help in preventing pneumonia? *Indian Pediatr*. 2009;46(5):403-4.

14. Zile MH. Vitamin A deficiencies and excess. In. Kliegman RM, Stanton BF, Schor NF, St Geme III JW, Behrman RE. Nelson Textbook of Pediatrics Nutrition part VI, 19th Ed., Elsevier, Inc., Philadelphia, chapter 45 , 2011; 190 p.
15. World Health Organization. Vitamin A supplements: a guide to their use in prevention and treatment of vitamin A deficiency and xerophthalmia. WHO, 1997.
16. Ross DA. Recommendations for Vitamin A Supplementation. Proceedings of the XX International Vitamin A Consultative Group Meeting. J. Nutr 2002;2902S-6S.
17. Annual Report 2070/71 (2013/2014). Child Health: Nutrition. 2014; 32-33. Department of Health Services [Internet]. [cited 2015 December 1]. Available from: <http://dohs.gov.np/>
18. Kapil U. Time to stop giving indiscriminate massive doses of synthetic vitamin A to Indian children. Public Health Nutr 2009;12(2):285-6.
19. Pant CR, Pokharel GP, Curtale F, Pokharel RP, Grosse RN, Lepkowski J, *et al.* Impact of nutrition education and mega-dose vitamin A supplementation on the health of children in Nepal. Bull World Health Organ. 1996;74(5):533-45.