Clinical Spectrum of Category 'C' Swine Flu in Indian Children

We read with interest the article by Das, *et al*. [1]. The article has lucidly elaborated the clinical profile of confirmed swine flu positive cases. However, authors state that the data might not be representative of the cases who were not tested for swine flu [1]. We share our data of children presenting as category 'C' cases collected retrospectively from August to December 2009 [2]. Category 'C' is defined by the presence of fever and cough/ sore throat and one or more of the following: (1) breathlessness, chest pain, drowsiness, hypotension, hemoptysis, cyanosis; (2) a severe disease as manifested by the red flag signs; and (3) worsening of underlying chronic conditions. These children were therefore tested and treated for swine flu according to MoHFW guidelines [2].

Ours is a tertiary care referral teaching hospital in north India which caters to low-middle income groups. During the outbreak, patients of all age groups with suspected swine flu were treated in a 'hybrid unit'. A total of 2,335 patients attended the hybrid swine flu OPD services, of which 530 were children. Seventy three (13.7 %) children were categorized as Category 'C'. Thirty eight (52%) children were between 5–12 years, and 35 (48 %) were <5 years age. History of contact with a confirmed case of swine flu or residence where there are one or more confirmed swine flu cases [2], was present in 18 (25%) of the children. Fever, cough, breathlessness and nasal catarrah/ sore throat were predominant complaints (***Table* I**). Nasopharyngeal swabs of all 73 patients were collected by a microbiologist and tested with real-time reverse transcriptase polymerase chain reaction assay. All children received antiviral therapy (oseltamivir) [2]. Of category C children, 27 (37%) were positive for 2009 Novel H1N1-virus. Most common symptoms were fever and cough similar to the study by Das *et al* [1]. Of all category C children, there were 3 (4.1%) deaths. All 3 children developed acute respiratory distress syndrome and died within 5 days of hospitalization. Two of them had co-morbid conditions-one was a known case of epilepsy but seizure free for past 1 year, and other had pulmonary tuberculosis and was on anti-tubercular therapy under DOTS. All 3 deaths reported by Das, *et al*. [1] also suffered from underlying chronic diseases.

A high index of suspicion should be kept as the features of swine flu are nonspecific. Underlying co-morbidities might increase chances of death, hence such patients should be closely monitored.

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Cervical Spine Injury - A Rare Cause of Torticollis

A 9-month-old male child had a fall on his head from a height of 4 feet when he was being carried in arms by the elder sibling. The child developed tilt of his head to left and resisted any attempts to passively correct the tilt. The child did not have any other injury and there was no neurological deficit. Radiographs of the cervical spine showed fracture of lamina at C2 level. The child was given a Minerva jacket plaster for 3 weeks. When the plaster was removed at the end of 3 weeks, the child could freely move his head and neck without any tilt and had no tenderness in the cervical spine. The follow-up radiographs showed healing of fracture.

Congenital torticollis is the commonest cause of torticollis in children. It is caused by injury to

sternocleidomastoid during a difficult labor when it undergoes ischemic necrosis and contracture. The occiput is deviated towards the ipsilateral shoulder and chin is deviated towards the contralateral side. The other common causes include cervical lymphadenitis causing reflex spasm of sternocleidomastoid and dystonic side effects of some drugs like phenothiazines, metoclopramide, haloperidol, carbamazepine and phenytoin. Congenital cervical spine and craniovertebral region abnormalities are the true congenital reasons of torticollis. Post-burn contractures and neoplastic lesions of posterior cranial fossa and spinal cord can be the other causes. Benign paroxysmal torticollis is a self-limiting condition in infants characterized by episodes of head tilting.

Injuries to cervical spine in children are very uncommon and account for 1% of paediatric fractures and 2% of all spinal injuries [1]. These children have high mortality rates because of associated lethal head injuries [1,2]. Cervical spine injury in the 0-2 year age group occur mainly at $C_1 - C_2$ level [3]. There are many anatomical reasons for this difference. Younger children have relatively large head size, increased ligament laxity, poor musculature, anterior wedging of cervical vertebral bodies, horizontally oriented facet joints and a higher fulcrum at C1 – C2 [2]. We could not find a similar case in the English literature where the patient had an isolated fracture of C2 lamina without neurological deficit in infancy. We also could not find any report of pediatric cervical spine injury where torticollis was the presentation. This report highlights the fact that the survivors of upper cervical spine injury can present with very subtle signs and symptoms, including torticollis. It is important to screen the cervical spine before excluding any injury to this part. Most of these fractures when detected early can be managed non-operatively and usually have a favorable outcome.

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Screening for Heart Disease at Birth

We read with great interest the recent article by Balu, *et al*. [1]. However, in methodology, sample size considerations and calculations have not been mentioned.

As the sensitivity of gold standard has been mentioned as 88%, we calculated the sample size for 80% with a deviation of 5% on either side and the calculations show that sample size in this study is woefully inadequate [2]. Thus the study was inadequately powered to assess the validity of the proposed screening tests. As PPV depends upon prevalence, likelihood ratio is a better measure to overcome this inadequacy which has not been calculated in this study. Authors also state that more training (how much) would be required to get a better result, which raises the question of internal validity. In the diagram describing association of pulse oximetry with clinical evaluation and echocardiography it seems that all newborns went through pulse oximetry first followed by clinical examination but authors initially mentioned the reverse sequence. The appropriate sequence of clinical examination followed by oximetry has also been described earlier [3].

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