random cortisol value below 13 mg/dL (~360 nmol/L), during severe stress is a predictor of increased mortality with potential benefit with glucocorticoid supplementation(3). Since thalassemics are chronically stressed with anemia, hypoxia and multiple organ dysfunction, we proposed that a baseline cortisol value of <400 nmol/L is inappropriately low for these patients. Any intermittent acute ilnness has the potential to precipitate adrenal insufficiency. Though adrenal insufficiency, by accepted criteria of stimulation tests, is less common in thalassemics, a high index of suspicion is warranted to diagnose and treat this condition in thalassemics in an appropriate clinical setting.

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Role of Shunt Surgery in Pediatric Tubercular Meningitis with Hydrocephalus

The authors(1) of "Role of shunt surgery in pediatric tubercular meningitis with hydrocephalus" have tried to delineate the indications and timing of shunt surgery in tubercular meningitis. However, we find an obvious fallacy with the conclusion drawn.

1. The authors have retrospectively analyzed records of 37 children with tubercular meningitis hydrocephalus (TBMH) all of whom underwent ventriculoperitoneal shunt surgery, correlating stage of disease at the time of surgery and outcome. They conclude that since children who were shunted in earlier stage did better, shunts should be performed in all children with TBMH as soon as they are diagnosed.

   It is well known that stage of the disease at the time of diagnosis is a strong prognostic indicator in TBM because it also determines the time when antitubercular therapy was started. Time of starting antitubercular therapy would thus act as a confounder/effect modifier as it is itself a predictor of outcome. The authors have not taken this into account. Although they mention the duration of antitubercular treatment in the group as a whole, they have not analyzed this with respect to outcome. To delineate the beneficial effect of shunt surgery and stage, one would have to compare outcomes in shunted vs nonshunted children stratified for stage. The better outcome in children who were shunted in earlier stages of TBM was probably because antitubercular therapy was also started earlier in these patients.

2. The authors themselves admit that shunt surgery in children has a high rate of complications. The shunt remains in place

throughout the life of the person. In the social mileu of our country, it would be a stigma making marriage and jobs difficult. We can recount many children in whom shunt surgery was advised but was refused by the family and on follow up the child was normal or near normal. Such children would have been subjected to unnecessary shunt with its attendant complications and stigma.

3. It is quite clear that hydrocephalus in TBM does arrest in a proportion of patients. What is not clear is (*i*) What clinical or radiological features in the patient predict arrest of hydrocephalus (*ii*) whether shunt in such cases improves outcome and (*iii*) what clinical and radiological features (apart from just stage of disease) predict a favourable response to shunt surgery. I think these are questions that urgently need to be answered. Till then, it may be best to give a trial of medical treatment and shunt surgery be kept for those with TBMH who fail to improve on medical treatment.

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Reply

1. It is correct that antitubercular therapy is also responsible for the beneficial effect in these patients, and we have not claimed otherwise. We feel that it is not justified to wait in a patient who has neurologic deficit (with hydrocephalus) or in the case of a drowsy patient. The shunt procedure itself takes care of the hydrocephalus related symptomatology, and the continuing antitubercular therapy treats the meningitis. To differentiate the beneficial effect of antitubercular therapy from shunt by stratifying the duration of antitubercular therapy would require a much larger patient population, and should be done as a prospective study wherein issues like compliance can be better kept track of. The above cannot be expected from our retrospective review of 37 patients. The policy of purely expectant antitubercular treatment is followed by us only in patients with TBMH having headache, or other signs of raised intracranial pressure but without neurologic deficits or alteration in sensorium, and it is true that in some such patients we may be able to avoid need for shunt eventually. We do not follow the policy of shunt placement in ALL TBMH cases, as has wrongly been interpreted. This has been clearly brought out in the discussion section.

2. It is well-known that shunts done for TBMH have poorer results and higher complications. However, we do not feel that patients with a neurologic deficit or alteration in sensorium should be managed expectantly on ATT. The 62% and 40% good outcome seen in our study in Grade 2 and Grade 3 patients, respectively points to this fact. The remaining patients did not improve despite continuing ATT, pointing to the fact that one should aggressively treat these patients with all means available and not have unrealistic expectations from ATT alone. The social stigma and related issues are