effect of glucose infusion and the factors of the illness necessitating parenteral fluid result in a calorie expenditure rate best reflected by a fasting infant or a quietly active normal infant. The data comparing the solute excretion of these infants and those on breast milk and oral glucose to those on cow's milk led us to conclude that renal water excretion could be reduced without necessarily supposing a reduction in calorie expenditure. Should the figure for total calorie expenditure be too high, but the shape of the curve correct, a simple reduction of the estimated total calories by 20% to 25% adapts it readily to the figures cited by Dr. Darrow. It seems this adaptability is an advantage for the clinically apparent exception as well. From this corrected figure, the total water requirement may be calculated using a modified figure for water need. This flexibility has not been apparent in using surface area.

The final evaluation of any system is its utility. Insofar as we can tell, all of these systems and others are workable in most average instances. The emphasis of teaching water requirements should center on identifying those factors which may result in a departure from the average requirement for water rather than on an easily remembered average figure for water requirement.

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References

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2. Holliday, M. A., and Segar, W. E.: Maintenance need for water in parenteral fluid therapy. PEDIATRICS, **19**:823, 1957.

TO THE EDITOR:

We note with interest that Drs. Hurst and Darrow agree that body fluid requirements of patients of differing sizes bear a simpler relation to weight raised to the two-thirds power than to weight directly.

"Surface area" is directly proportional to the two-thirds power of weight, being closely equal to weight in $kg^{2/3} \times 0.1$. We have used "surface area" thus defined as a basis for describing limits of tolerance and related physiologic data and for expressing dosages simply because this familiar body dimension has been found empirically to give reasonably satisfactory results. No causal relationships have been implied in this usage. In view of the foregoing, we cannot see that whether one uses $weight^{2/3}$ or "surface area" as the factor for orienting dosages in clinical practice makes much difference.

We are surprised that Dr. Darrow does not realize that our aims are essentially identical with his: namely, to try to make sure that patients are provided with water, electrolytes and other essential nutrients at adequate, yet physiologically tolerable, rates. This aim can be fulfilled only by paying attention to the fact that various conditions and diseases tend to diminish or otherwise change the capacity of the body's homeostatic systems to conserve and to eliminate water and other nutrients in accordance with needs. The use of "surface area" as a basis for defining these limitations, by making it possible to pool data obtained from individuals of various sizes, has greatly simplified the task of estimating the probable requirements and tolerances of individual patients.

Those who find it easier to follow the recommendations offered by Dr. Holliday in his letter to the Editor should feel free to do so.

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ERRATUM:

In the COMMENT BY THE EDITOR on Talbot and Ritchie's Letter to the Editor (PE-

DIATRICS, 24:498 column 2, paragraph 2, 1959) Figure 1 should have read Figure 2.

Patterns of Transaminase Activity of Serum as Diagnostic Aid in the Newborn

TO THE EDITOR:

I have read with interest the paper "Glutamic-oxalacetic transaminase of serum in infancy and childhood" by Stanton and Joos (PEDIATRICS, 24:362, 1959). The statement is made that "S-GOT is elevated in diseases of the liver, but the results are too variable for specific differentiation of hepatic diseases in early life." This conclusion is in sharp contrast to the reported findings of my colleagues (Goldstein, S., Perry, R., and Wróblewski, F.) and myself and some clarification of these divergent views appears to be in order.

Apparently the basis for the difference of opinion is pinpointed by the statement of the authors that, "For the most part, serial determinations of S-GOT were not carried out." Herein lies the crux of the problem. Stanton and Joos performed a total of 125 determinations for 112 infants and children with a variety of conditions, whose ages ranged from 48 hours to 15½ years; 46 of these were normal newborn infants and children. Their findings included a total of 25 determinations for 22 infants and children with some form of hepatic disease, and varying in age from 4 months to 15 years. Thus among this latter group apparently no more than three infants had as many as two determinations. Further analysis is not possible since information is not provided relative to the stage of the disease process at the time of measurement of enzyme activity.

With these facts in mind the authors are well justified in their view that *their* results were too variable to aid in differentiating hepatic diseases. This would appear to be a logical conclusion provided that it is clearly understood that their conclusion applies to their method of study, i.e., single isolated determinations of transaminase activity. This is particularly true when these single determinations are performed without due regard to the stage in the course of the disease.

Working with a much younger group of infants, we have been actively engaged since September 1956 in a continuing study of transaminase activity in serum [glutamic-oxalacetic transaminase (GOT) and glutamic-pyruvic transaminase (GPT)] as a diagnostic aid in jaundice in the neonatal period and very early infancy. The study was prompted by the fact that for this time of life icterus of unknown origin often presents a difficult and frustrating problem in diagnosis, despite information obtained from the history, physical examination and the usual laboratory procedures. The group included normal newborn infants to establish the normal range of transaminase activity in the serum for the neonatal period. In addition a number of infants with jaundice due to a variety of pathologic conditions were studied.

At the time of first observation, all infants in this latter group varied in age from birth to 3 months. The single exception was a 5½-month-old premature infant (28-week gestation). Serial determinations of GOT and GPT activity were performed at frequent intervals for all infants in this second group.

It was found that characteristic patterns of enzyme activity evolved for each of the varied causes of icterus in the neonatal period and very early infancy, thereby facilitating the etiological diagnosis. From examination of these enzyme patterns it appeared obvious that, depending on the stage of the disease, while a single determination of transaminase activity may be informative, it might also yield no information of value. These preliminary observations together with detailed case reports have been reported (PEDIATRICS, 20:584, 590, 1957; J.A.M.A., 168:860, 1958; Arch. Surg., 78:157, 1959). An additional paper describing the results of further studies is

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