Weight dosing of steroids in nephrotic syndrome

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Sir,

We read with great interest the article of Saadeh et al. [1] and the corresponding editorial [2] on the dosing of glucocorticoids in steroid-sensitive idiopathic nephrotic syndrome (SSINS). Based on their results, Saadeh et al. [1] concluded that underdosing of prednisone, when prescribed according to weight (2 mg/kg) instead of body surface area (60 mg/m²), might result in an increased likelihood of a frequent relapsing course.

However, three issues of steroid dosing were not addressed in their study: (1) the appropriate weight of an oedematous child with newly diagnosed SSINS; (2) available formulation of oral steroids; (3) the use of different steroid metabolites.

It is difficult to assess the “appropriate” weight in a child presenting with a first episode of SSINS. Diagnosis is often delayed as many children present after a history of several weeks of marked oedema and a weight increase that often exceeds 10–20% of the pre-illness body weight. This extra volume (weight) is lost within a few days upon remission. Given the average weight of 24.5 kg in Saadeh's patient population [1], the “appropriate” body weight might correspond to 20 kg. A daily dose of 50 mg prednisone corresponds to 2 mg/kg body weight based on the weight at presentation, but to 2.5 mg/kg body weight based on the “appropriate” weight. The situation is different in the case of future relapses as the patients' urine will be checked daily, with some parents

even keeping a log book. Consequently, as soon as the positive dipstick heralds a relapse, steroid therapy is initiated before marked oedema—with subsequent increase in weight—will develop. Thus, prednisone dosing according to weight will correspond to 2 mg/kg of the “appropriate” weight. The question which arises is whether dosing might preferably be related to height, as used in the Schwartz formula to estimate glomerular filtration rate.

A second issue relates to the formulation of oral prednisone. In some places, only tablets are available, the smallest of which contain 5 mg prednisone. Therefore, the minimal dose interval is for practical reasons 2.5 mg (1/2 tablet) with appropriate rounding.

Finally, steroids are either prescribed as prednisone, as used in the studies of the International Study of Kidney Disease in Children, or as prednisolone. Oral prednisone and prednisolone seem to be interchangeable as prednisone is converted in the liver into the presumptive active metabolite prednisolone. Most SSINS patients are treated orally, but some sick patients, in particular during the first episode, are given steroids intravenously with a substantially differing immunosuppressive effect [3].

References

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