

Re: Elbaset MA, Ezzat O, Elgamal M, Sharaf MA, Elmeniar AM, Abdelhamid A, *et al.* Supernormal differential renal function in adults with ureteropelvic junction obstruction: Does it really exist? *Indian J Urol* 2020;36:205-11

Dear Sir,

We read with interest the article on supranormal differential renal function (snDRF) in adults by Elbaset *et al.* and congratulate the authors for the first such study reported in literature.^[1] It is not uncommon in day-to-day practice to see patients presenting late in adulthood with hydronephrosis due to suspected pelviureteric junction obstruction. In this subset of patients, snDRF would compound the clinical dilemma regarding the presence of significant obstruction and differentiating it from a dilated nonobstructed system.

There are certain aspects of this study that need better understanding. It is generally agreed with the description by Koff that obstruction is best defined as any impediment to the drainage of urine from the kidney, which if not corrected would result in the deterioration of renal function.^[2] In the present study, neither have Elbaset *et al.* clarified the indications for surgical intervention at late age nor have they explained

why there was no functional deterioration in these patients despite late presentation of a congenital obstruction at an age of 36 ± 16 years.

The authors found that renal pelvis volume of 50 mm³ and anteroposterior diameter (APD) of 37 mm were associated with the highest sensitivity and specificity as far as the occurrence of snDRF was concerned. We would like to mention that the measurement of APD is affected by various factors such as the amount of hydration, fullness of bladder, and the position of the patient in which it is measured.^[3] The authors have not explained how these factors were standardized during the study.

The authors conclude that their findings support the theory that snDRF is related to kidneys with large roomy renal pelvis with severe obstruction. Does this mean that all large renal pelvis will be associated with obstruction? By convention, $t_{1/2}$ value >20 min is taken as an indicator

of obstruction; however, there have been many studies which have shown that $t_{1/2}$ values are fallacious due to the reservoir effect. Furthermore, there are many factors such as hydration, bladder fullness, and effect of gravity, which affect these values. We would like to state that $t_{1/2}$ values alone are not good enough to diagnose obstruction, especially in large renal pelvis which are often complaint and at times are protecting the renal parenchyma from backpressure effects.^[4]

There are parameters such as cortical transit time, which give a better idea regarding the excreting ability of the renal parenchyma and are more accurate in predicting the need for surgery. Furthermore, quantitative parameters such as output efficiency and normalized residual activity (NORA) have been shown to be more accurate renal emptying parameters as compared to $t_{1/2}$.^[4] NORA is calculated by dividing the uptake values at a given point, often at 60 min with the uptake value at 2 min.

We propose that it is important to look at some more parameters in these patients to differentiate patients who may be obstructed and need intervention from those who need follow-up alone. NORA is easy to calculate, does not need additional software, and can determine if the renal pelvic emptying is adequate. Percentage renal volume determined on magnetic resonance urography or computed tomography scan has been shown to correlate better with renal function. DMSA scan would be able to identify contradictory snDRF and assess the exact renal function.^[5] These factors are important to use before decision of surgical intervention in patients with snDRF.

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