The Journal of Urology

Pinpointing the urological risk in open spina bifida

--Manuscript Draft--

Manuscript Number:	
Article Type:	Letter to the Editor
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Pinpointing the urological risk in open spina bifida

In a recent cross-sectional study from The Netherlands, Veenboer and colleagues report that adult patients with spina bifida who walk into the consulting room (as opposed to those who use a wheelchair) are unlikely to have unfavourable urodynamic findings [1]. This useful observation may also apply to children. In the Cambridge cohort of 117 consecutive, unselected patients born with open spina bifida between 1963 and1971[2], 75 survived to the mean age of 9 years at which time 15 (20% of survivors) walked independently. None of these walkers subsequently died of urological causes over the next 37 years compared with 20% (12/60) of the remainder.

However neurological level in infancy in terms of sensory loss to pinprick is a better predictor of an adverse urological outcome than walking, or bony level, cutaneous level or motor level[3]. Using 2013 data from the Cambridge cohort[3] (which has no loss to follow up), Figure 1 shows that urological deaths occurred only in those born with a sensory level of T5-L1 ($p<0.001$). This consistent relationship between a high sensory level in infancy (recorded by the neurosurgeon) and subsequent urological death persisted despite a range of urological management and operations carried out at many different hospitals over a period of nearly 50 years.

We also found clustering of urological deaths. Of 31 patients born with a sensory level of T9 or T10, 14 (45%) died of urological causes. This interesting finding deserves further consideration. Anaesthetic skin in the thoracic or first lumbar dermatomes might indicate a neuropathic renal tract, with both skin and kidneys vulnerable to disease mediated by the common risk factor of interruption of their nerve supply.

Finally, sensory level may be related to congenital renal abnormalities. In another study of 190 patients with open spina bifida[4], renal agenesis was associated with a sensory level between T5-8, horseshoe kidney with T9-L1 and ureteral duplication with a sacral sensory level. Sensory loss and renal abnormalities may reflect the level at which neurulation failed[5].

We agree with Veenboer and colleagues that urological review in patients with open spina bifida should focus on the ones who are most at risk[1]. In practice this means non-walkers and those with a sensory loss to pin prick extending to (or above) the first lumbar dermatome.

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Funding: Newlife Foundation for Disabled Children. SG/11-12/06

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Figure

Figure 1. Deaths from urological causes and sensory level recorded in infancy in a complete cohort of 117 consecutive cases of open spina bifida