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Management of menstruation

Manipulating growth and puberty in those with severe disability: when is it justified?

Gary E Butler, Elaine A Beadle

Perspective on the paper by Albanese and Hopper (***see page 629***)

Albanese and Hopper have laid out a clear stepwise approach to the management of menstruation, wanted and unwanted, in girls in whom self-management is either not an option or undesirable, or where prevention of unwanted pregnancies may be in the girl's ''best interests''.[1] It is the use or misuse of this phrase ''best interests'' that can license medical practitioners to extend the nature of interventions into uncharted territory. There is no doubt that it is in the child's ''best interests'' to have a loving and stable home, and this is most likely to be best provided by the family. How far though should we extend clinical manipulation to achieve this end? This discussion was brought to the fore in the case of the American girl Ashley X, diagnosed with static encephalopathy,[2] about whom discussions with her doctors over matters concerning puberty manipulation went far beyond the standard approach and led to growth limitation with high-dose oestrogens combined with irreversible surgical interventions such as hysterectomy and mastectomy to avoid the side effects of the hormone treatment and improve quality of life. This approach has taken us into a quagmire of diametrically opposed opinions, polarised between those in support of her parents' genuine desire to achieve the best outcome for their child, and those staunch defenders of the rights of the disabled. Who is right therefore, and should the ''Ashley treatment'' which her parents have been advocating[3] be considered for all children with severe disability? Situations such as this demand an objective examination of medical evidence but also a clarification of our moral duties as carers and where we stand within the law.

Let us examine the facts. Ashley presented with central precocious puberty when aged 6 years, a not unusual finding in children, especially girls with major central nervous system disruption. What are the consequences of this? In children with normal cognitive functioning, early sexual maturation is usually accompanied by pronounced emotional swings and personal embarrassment resulting from the precocious physical changes of puberty causing families to beg for intervention to halt the process. Is this the same in children with reduced levels of functioning? This must be assessed individually, taking into account the carers' observations and views, and their personal situation. The inability to cope with the strong emotional surges of sex hormone secretion, or the manifestation of inappropriate explicit sexual behaviour, warrants reversible treatment with gonadotropin releasing hormone analogues. What about suppressing menstruation? Views are mixed, but in girls who have not achieved continence, families often report that menstrual periods cause little extra bother for their daughter or need for extra care. A staged and reactive approach to management is surely the most acceptable, and raises few ethical objections from any party. Surgery may need to be considered when medical treatment fails.

Why therefore such outcry at the prophylactic hysterectomy and mastectomy offered in the case of Ashley X? Well it flies in the face of moves to define judgement in this area through recent legislation such as the Mental Capacity Act in the UK.[4] This begins with the presumption of capacity, supporting people to make their own decisions unless proven that they cannot despite appropriate help being given. It assumes that anything done for or on behalf of people without capacity must be in their ''best interests''. Any consequent intervention in such circumstances should be the least restrictive of their basic rights and freedoms. Additional to this is the ''Gillick test'' of competence that all doctors must apply to minors below the age of 16 years to ensure that the principles of beneficence and non-maleficence are executed in each individual circumstance.[5] An additional onus is placed therefore on those caring for under 16 year olds.[6]

A legal and moral minefield? Well not if approached piecemeal. It is clear that many children in similar circumstances are not even capable of participating minimally in decisions in respect of their own treatment. Therefore the involvement of parents is crucial and consistent with the Mental Capacity Act. However, how far does the parental exercise of authority extend, especially when the requirement is for interventions that should be the least restrictive of basic rights and freedoms? Medical therapy is often reversible, but surgery as in Ashley's case is not. Her future options are therefore more radically restricted than necessary. Here there was a very obvious conflict of interests: the options involving courses of treatment or non-treatment would affect not just her quality of life but that of her carers also. So it is more difficult to ensure that the interests of the child remain paramount when their proxy has their own interests to consider. Who therefore should exercise judgement of ''best interests''? Is it the parents who have day to day responsibility, or the clinicians, hopefully furnished with objective accurate information? Are we the most advantageously placed to judge the best course of action? Even if the prevailing public view is that this treatment could be appropriate in this case, it should not necessarily lead us to conclude that similar treatment is appropriate in all cases of major disability. Individual circumstances need to be considered,

particularly when medical or social factors are exceptional.

Central to the decision making process is a proxy judgement of an individual's quality of life. This is very tricky to ascertain in children in any case, and how often do attempts to measure this reveal a significant divergence of opinion between children and their parents.[7] It is surely not surprising that children adapt better to adversity than their parents give them credit for. Quality of life is an important and emotive issue which should colour our decision making, yet tools for its objective measurement are very crude. However, that should not preclude us from at least trying to make an assessment.

So, having debated the rights and wrongs of intervening in pubertal development, what about the thorny issue of growth limitation? We expend considerable energy prescribing measures to promote growth in disabled children, such as accelerated nutrition or growth hormone,[8] since failure to thrive is often regarded as a failure of parental and clinical care. So then, when we are faced with the opposite request, to limit growth to facilitate long-term care, what should our response be? The extent of growth failure is now well appreciated as being in proportion to the severity in conditions such as cerebral palsy, so much so that reference standards are now available.[9] Thus children with the most severe psychomotor retardation grow the least well. This is the situation even in the absence of other distortions such as pathological precocious puberty. The onset of early sexual development curtails prepubertal growth significantly, and as transit through puberty is accelerated, resultant adult stature is even further reduced as a result of premature growth cessation. Therefore, if this can be predicted by expert opinion and is expected, why the need for intervention, especially if treatments such as high-dose oestrogens may have physical and psychological complications? Treatment with high-dose sex steroids to accelerate puberty and promote premature epiphysial fusion in constitutionally tall children is only modestly successful with reported reductions in adult height of at most 6 cm.[10] Advocating surgical intervention to control the complications of such treatments brings us right back to the debate about autonomy and consent, and also whether any medical treatment is necessary at all. We also need to recognise that a high-dose oestrogen treatment regimen is rarely used nowadays in girls in favour of inducing an early onset and rapid transit through puberty using physiological oestrogen doses.

We find ourselves on the horns of a dilemma. Pioneering new clinical developments is fundamentally important, yet we must be certain that the rights of the vulnerable are not violated. We must also be absolutely certain of our facts about the natural history of particular clinical situations before claiming definite benefits from any interventions. We do have the duty to support carers, but our overriding responsibility as paediatricians is to the child and their wellbeing, and that may well put us in an unenviable position while we advocate for what we believe is right.

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Hyperinsulinaemic hypoglycaemia

Hyperinsulinaemic hypoglycaemia: biochemical basis and the importance of maintaining normoglycaemia during management

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In patients with suspected hyperinsulinaemic hypoglycaemia, blood glucose concentrations should be maintained within the normal range during routine management

Hyperinsulinaemic hypoglycaemia (HH) is a major cause of recurrent and persistent hypoglycaemia in infancy and childhood.[1] Rapid diagnosis, avoidance of recurrent and repeated episodes of hypoglycaemia and prompt management of the hypoglycaemia are vital in preventing brain damage and mental retardation.[2] Unfortunately, a large proportion of children with HH still develop brain damage as a consequence of delayed diagnosis and subsequent management. HH can be either congenital or secondary to certain risk factors (such as intrauterine growth retardation). Congenital hyperinsulinism involves either defects in the genes *ABCC8* and *KCNJ11* (encoding for the two proteins SUR1 and KIR6.2 of the pancreatic β cell K_{ATP} channel, respectively) or abnormalities in the enzymes glucokinase, glutamate dehydrogenase and short chain acyl-CoA dehydrogenase (*SCHAD*). Loss of function mutations in the genes *ABCC8* and *KCNJ11* cause the most severe forms of HH which are usually medically unresponsive.

HH is also observed in newborns with intrauterine growth retardation, in infants with perinatal asphyxia, in infants