on direct-to-consumer advertising will almost certainly be challenged. But health professionals will also be able to claim protection under the act. Junior doctors forced to work long shifts may claim the benefit of article 4. And it should be more difficult to suspend a doctor or nurse indefinitely while numerous agencies make protracted investigations into his or her conduct.

A Scottish judge (now retired) has called the act "a pain in the neck for judges and legislators" and "a goldmine for lawyers." However, we should not be so cynical. The act is intended to benefit everyone. It brings us into line with other democracies and is a civilised start to the new millenium.

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Testicular cancer and infertility

Abnormal semen analysis is associated with a small increase in risk

Paper p 789

The potential links between the detrimental environmental effects on reproduction and the worldwide increase in testicular cancer evoke huge interest in clinicians, scientists, and the public.[1-3] The retrospective study by Jacobsen and colleagues in this issue (p 789) shows that men with abnormal semen analyses are at an increased risk of testicular cancer.[4] These results provide more substantial evidence to support earlier studies reporting an increased incidence of testicular cancer in men who have few children for their age.[5] The results show a higher risk in men with lower sperm counts, especially when combined with abnormal motility and abnormal sperm morphology, all of which suggest a more serious testicular defect.

The observation that the highest risk is found within the first two years after the semen analysis may be related to the early age at which the peak incidence of testicular cancer occurs.[4] Most studies indicate that most testicular cancers occur before 40 years, a finding that strongly suggests that the cellular events leading to this cancer start at an early age, if not in fetal life.[6] Such a view is supported by cellular features that are common to carcinoma in situ cells, which represent the precursors of the major testicular cancers, and gonocytes, the precursors of spermatogonia, the stem cells for spermatogenesis. Carcinoma in situ is more common in men with infertility, in accordance with the observed link between abnormal semen analysis and risk of testicular cancer.[4 7] Furthermore, carcinoma in situ is also more frequent in undescended testes, a condition linked to an increased risk of testicular cancer and infertility.[8]

The specfic links between the pathological events that cause infertility, undescended testes, and testicular cancer remain unclear. Some concepts suggest an abnormality in Sertoli cells in the fetal or neonatal period. Sertoli cells (the supporting cells in the seminiferous tubules that control the intratubular environment) supply key metabolites to germ cells and transduce hormonal signals to germ cells, and an abnormality in their functioning may alter the fate of gonocytes.[6] Instead of differentiating to form spermatogonia and thus initiating spermatogenesis, the gonocytes may remain in the testis and become subsequently transformed to develop into carcinoma in situ cells. These carcinoma in situ cells have a 50% chance at five years of becoming an invasive tumour. Since the Sertoli cells perform crucial functions that initiate and sustain spermatogenesis, an abnormality in their function may disrupt spermatogenesis.

Since these cells are also responsible for the production of Mullerian inhibiting substance, the absence of which has been linked to certain forms of testicular maldescent, it is possible that malfunction of the Sertoli cell may be a common link between these conditions.[9] Some investigators propose that the cause of the abnormal function of Sertoli cells may result from their exposure to endocrine disruptors and high maternal oestrogens.[3 10] Additionally, Tarone et al have reported an increased risk of testicular cancer in American serviceman who were in Vietnam, linking this observation to exposure to toxic agents.[11]

For the clinician, the study in this issue strengthens the link between infertility and cancer of the testis, but it is important to note that the increased risk of 1.6 fold is small.[4] It nevertheless adds to other risk factors, of which the most important is the link with undescended testes and infantile hernia; these result in, respectively, a fourfold and twofold increase in cancer of the testis, as noted in a large case-control study.[12] Interestingly, these authors noted that the increased risk of testicular cancer disappeared if orchidopexy was performed before 10 years of age. Testicular cancer is the most common form of cancer in men between men aged 15-44, and as its presentation is usually to the family doctor, it is important that risk factors are identified to heighten awareness.

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The separating of conjoined twins

A human life has the greatest value, but its loss may be justified

News p 783

It is rare for judges to comment on the personal difficulties they face in reaching decisions. Unlike doctors, who can freely admit to the anxiety that difficult decisions may give them, judges are meant to remain tight lipped. The controversial case of conjoined twins, recently decided by the Court of Appeal in England, has been different.[1] The twins, brought to Britain for medical assessment, need to be separated. Surgery can save one but will inevitably lead to the death of the other twin, who has no effective heart or lung function and who also seems to have brain damage. The parents do not want the twins separated if one twin has to die. At several points the judges involved in the decision made public remarks about sleepless nights. After all, judges are human, and nobody could have found this case anything but distressing. Now, after all the soul searching, we have a decision and, even if the case goes further on appeal, the tide of judicial opinion on this issue seems clear enough. The twins, Jodie and Mary, are to be separated, at the inevitable cost of the life of Mary, the weaker twin.

What is the legal significance of this case? One thing is clear: this decision, the transcript of which runs to well over 100 pages, is likely to have an impact outside Britain. In looking at all the legal and moral issues involved, the judges took a broad view and looked to the laws of several countries. The judgment, therefore, speaks to doctors and lawyers abroad, even if ultimately it concentrates on what English law should do. This will certainly be a landmark decision in any future debate on the law and ethics of life and death decisions.

The legal issues were complex. The parents did not want Jodie to be saved at the cost of Mary's life. They took the view that this would be to end a life—a position in which they were supported by their Catholic church. In these circumstances the first issue that the court had to address was whether parents could refuse to allow treatment. Here the court applied a well established principle of English law, which is that judges can overrule parental opposition to treatment if it is in the best interest of the child to do so. This is the so called "welfare principle," which places the child's welfare above any parental interest. This principle usually gives a clear answer: doctors may be authorised by the court to treat a child if a parent refuses to sanction treatment that is clearly necessary for that child's welfare. Family law in many countries also endorses that principle unambiguously.

In a normal case that would have been enough, but this was no ordinary case. Even if parental wishes were to be overruled the interests of each child had to be considered. This issue obliged the court to consider whether it could prefer the interest of one child over the interests of another. The judges were at pains to hold that Mary's life had intrinsic value, even if she was dependent on her sister and had no hope of a reasonable quality of life. But this, of course, did not provide an answer to the dilemma, and eventually the court had to consider the way in which each child would individually be able to exercise her right to life. The scales then came down in favour of the twin who could survive.

There was still the issue of the criminal law. The judges might decide to favour one child over another, but they could not authorise a procedure that could amount to homicide. At this point the principle of necessity entered the court room. Necessity is a broad criminal law defence that may authorise an otherwise criminal act provided that the act is the lesser of two evils. This judgment holds that exceptional necessity may justify the taking of a life when an inescapable choice has to be made between two persons.

Doctors should be wary, however, of reading too much into the court's conclusion on necessity. The judges have made it abundantly clear that the value of every human life must be upheld, and it is only when there is absolutely no alternative but to make a choice between lives that this will be permitted. Obviously these circumstances will be rare, although there are interesting issues here for decisions about resource allocation in the future. This decision acknowledges that the making of a hard choice in favour of one life over another may be defensible in legal terms.

Critics of this decision will say that it represents a further step towards the legal recognition of euthanasia. This is not so. What it does is to endorse the position that, although human life is of the greatest value, no good end is necessarily served by taking an absolutist position. Life must be protected with great rigour, but there are some cases of dire necessity in which we may have to accept its loss.

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1 Court Service website. Siamese twins judgment. www.courtservice.gov.uk (accessed 26 September 2000).

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