



## MEDICINE

### *Assisted Reproduction*

In the practice of assisted reproduction, before implanting an embryo into a mother's womb, a biopsy is performed for the purpose of genetic screening. Does the biopsy affect the child's development? This was the question posed by the authors in "The Effect of Preimplantation Genetic Screening on Neurological, Cognitive and Behavioural Development in 4-year-old Children: Follow-Up of a RCT."<sup>1</sup> This study was performed to follow-up on an earlier study concerning in vitro fertilization (IVF) and preimplantation genetic screening (PGS). In the current study, forty-nine children who were born following IVF with PGS and sixty-four children born following IVF without PGS were subjected to neurological examination and testing at age four. The findings revealed that, overall, there was no statistically significant difference in the neurological, cognitive, or behavioral outcomes of those children born from IVF with PGS and those without PGS. However, in the subset of twins from both groups, there was worsened outcome in the twins following IVF with PGS. While a major limitation of this study is its small sample size, another important limitation is that the assessment was made at only one point in time, and it remains unknown whether any neurocognitive and behavioral effects are later manifested.

In a similar study assessing children following IVF, Sven Sandin and colleagues examined the association between assisted reproductive technology and the risk for autism and mental retardation.<sup>2</sup> These authors made use of Swedish national health registers and looked at the records of children born between 1982 and 2007 who were

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<sup>1</sup> P. Schendelaar et al., "The Effect of Preimplantation Genetic Screening on Neurological, Cognitive and Behavioural Development in 4-year-old Children: Follow-Up of a RCT," *Human Reproduction* 28.6 (June 2013): 1508–1518.

<sup>2</sup> Sven Sandin et al., "Autism and Mental Retardation among Offspring Born after In Vitro Fertilization," *JAMA* 310.1 (July 3, 2013): 75–84.

followed for autism or mental retardation until 2009. The focus was on conception through IVF and the circumstances around IVF, such as whether intracytoplasmic sperm injection was used (ICSI), whether the embryos used were fresh or frozen, and whether sperm were ejaculated or surgically extracted. Relative risks of autism and mental retardation in these children were compared to the risks in spontaneously conceived children. Of nearly 2.6 million children, about thirty-one thousand were born following IVF. Of these thirty-one thousand children, autism was diagnosed in 1.5 percent and mental retardation was diagnosed in 1.1 percent. When compared with spontaneously conceived children, there was no difference in the relative risk of autism, meaning that IVF was not associated with a higher chance of autism. However, there was a higher chance of mental retardation following IVF. Further, among the groups of children subjected to various IVF techniques, such as ICSI, there were significant differences in the risks for both autism and mental retardation.

While children frequently are referred to as gifts from God who call to mind God's graciousness, using assisted reproductive technology for the purpose of conceiving and bearing children is horribly devoid of all notion of gift. Rather, it conjures notions of taking, stealing, cheating, offending God, and at the very least denying charity.

#### *End-of-Life Care*

Interested as I am in end-of-life care and in spiritual well-being as an essential dimension of our life, the article "Provision of Spiritual Support to Patients with Advanced Cancer by Religious Communities and Associations with Medical Care at the End of Life" attracted my attention.<sup>3</sup> In this article, Tracy Balboni and colleagues examined the influence of spiritual support on patients dying with cancer and whether that support was provided by the medical team attending the patient or by the patient's own clergy or religious community. The results are very interesting. This multicenter study based in the United States involved 343 patients with cancer who were near death (median time to death was 116 days). Assessments included a patient interview at baseline enrollment and an interview after the patient's death with a caregiver who was able to discuss the patient's care in the final week of life. Questions about the extent to which religious and spiritual needs were supported by the patient's religious community (if at all) and by the medical system were asked, and the responses were semi-quantified. Patients were also asked to rate the importance of religion to them. Validated quality-of-life and end-of-life instruments were used in the analysis. The patients were grouped into those who reported receiving high religious community spiritual support (196 patients) and those reporting low religious community support (147 patients). The group reporting high amounts of support from their religious community received less hospice care, more medical interventions, and died in the intensive care unit more often. And of those patients who received support from their religious communities, those who were also given

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<sup>3</sup> Tracy A. Balboni et al., "Provision of Spiritual Support to Patients with Advanced Cancer by Religious Communities and Associations with Medical Care at the End of Life," *JAMA Internal Medicine* 173.12 (June 24, 2013): 1109–1117.

spiritual support by the medical team received more hospice care, less aggressive medical care, and died in the ICU less frequently. The authors speculate on differences between support derived from religious communities and that from the medical team, suggesting that the content of the spiritual support is a main factor affecting decisions for end-of-life care. Notably, they mention that belief in miracles and emphasis on perseverance and the hope found in suffering, presumably contained in the support from clergy or a religious community, may account for some of the differences with respect to end-of-life care. I found it somewhat unsettling that the authors seemed to imply that spiritual care provision by medical teams may be better even though, by measures in the study, there was no difference with respect to the quality-of-life measures near death. In other words, the implication is that more hospice care, less aggressive medical intervention, and fewer deaths in the intensive care unit (not reduced death overall) is the preferred outcome. Moreover, spiritual care provision by medical teams, albeit trained to some extent in spiritual care delivery to patients, strikes me as being a suboptimal or inferior model for spiritual support compared with support delivered by persons whose primary life vocation is oriented to the spiritual realm.

In the July 2013 issue of the *Journal of the American Geriatrics Society*, Qinghua Li and coauthors discuss hospice utilization and in-hospital death among nursing home residents with and without dementia.<sup>4</sup> Data from over one million decedents in approximately sixteen thousand nursing homes over a period of four years were analyzed, revealing that from 2003 to 2007 hospice use overall increased from 25.6 percent to 35.7 percent, and the increase was greater in those with dementia. In-hospital death rates were not significantly changed. This article provides a thorough presentation of the demographic and epidemiologic trends in hospice use and in-hospital death in US nursing home residents over time. What I thought was significant about the article, however, was not so much the data and the trends, but the underlying question about which the data sought to answer, namely what is quality end-of-life care? Contained in this article was a reference to a paper in which hospice use and place of death were posited as quality measures of end-of-life care for nursing home residents.<sup>5</sup> Proposing these measures, while reasonable, call for them to be carefully validated and, if found to be valid measures for good quality care at the end of life, then appropriately applied. That one of the coauthors of this paper is physician-assisted death advocate Timothy Quill, however, gives me great pause.

### *Cognitive Enhancement*

The ethics of performance-enhancing drug use appears far from settled, and as in all moral analyses, circumstances around a moral action are necessary elements to consider. Clearly, in many specific instances of enhancement drug use, it

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<sup>4</sup> Qinghua Li et al., "Quality of End-of-life Care of Long-Term Nursing Home Residents With and Without Dementia," *Journal of the American Geriatrics Society* 61.7 (July 2013): 1066–1073.

<sup>5</sup> D. B. Mukamel et al., "End-of-Life Quality-of-Care Measures for Nursing Homes: Place of Death and Hospice," *Journal of Palliative Medicine* 15.4 (April 2012): 438–446.

is easy to recognize unfairness, dishonesty, harm, and other features which render the use immoral. In other circumstances, however, especially when considering enhancements in a broader context, it is not so clear how enhancement drugs may be considered morally illicit. In these instances, there does not appear to be, for example, unfairness, dishonesty, or harm. In the *Journal of General Internal Medicine*, Robyn Emanuel and colleagues offer data on cognitive enhancement drug use among medical students.<sup>6</sup> These investigators conducted an online survey of Chicago-area medical students from four medical schools concerning the use of psychostimulant medications. Just over one thousand students (1,115) responded to the survey, and 18 percent reported use of psychostimulant drugs at least once in their lifetime, with the initial use in college (57 percent), and the second largest proportion reported first use in medical school (22 percent). Remarkably, the majority of psychostimulant use was not medically prescribed (63 percent), and nearly half of the acquisitions of the drugs were from a friend, relative, classmate, or acquaintance. The major reported reasons for use were to help with study, to increase concentration, wakefulness, and alertness, and to improve grades. With regard to the students' attitude toward psychostimulant use, half thought that use to enhance academic performance was a problem compared with 21 percent who did not view it as a problem. My forecast is that this topic will continue to become increasingly popular, will be debated, and perhaps more than in other ethics issues, will require greater effort, with utmost prudence, to see through to right action.

#### *Surrogate Decision Making*

Advance directives, for over two decades, have been a part of medical decision-making processes, though not without difficulties. Challenges related to interpretation, limitations in applicability, questions about reliability, and others have made them less useful than expected in practice. Another difficulty with advance directives concerns the conflicts that sometimes arise between the patient's directive and what the patient's surrogate or physician judges to be in the patient's best interest. Such conflict strikes at the core of what an advance directive represents, and its resolution in favor of the surrogate or the physician's judgment of best interests may undermine patient autonomy. Addressing this conflict between an advance directive and best interest of the patient is the subject of the article "When Previously Expressed Wishes Conflict with Best Interests."<sup>7</sup> In this paper, Alex Smith, Bernard Lo, and Rebecca Sudore use two hypothetical cases to show how a five-question instrument can be used to resolve a conflict between a patient's advance directive and what is judged by a surrogate or physician to be in the best interest of the patient. Both cases illustrate commonly encountered scenarios; one where a patient's previously stated wish was for no hospitalization; the other for a patient who wanted all medical efforts

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<sup>6</sup> Robyn M. Emanuel et al., "Cognitive Enhancement Drug Use among Future Physicians: Findings from a Multi-institutional Census of Medical Students," *Journal of General Internal Medicine* 28.8 (August 2013): 1028–1034.

<sup>7</sup> Alex K. Smith, Bernard Lo, and Rebecca Sudore, "When Previously Expressed Wishes Conflict with Best Interests," *JAMA Internal Medicine* 173.13 (July 8, 2013): 1241–1245.

made to preserve his life. To highlight the conflict, in the first case, it seemed most appropriate to hospitalize the patient for repair of a hip fracture with the likelihood of better managing her pain and restoring her ability to engage in activities that she enjoys. In the second case, the circumstances were such that despite all-out medical efforts, death would not be averted, and dying would be prolonged. The authors propose managing conflicts by using a tool to help arrive at the best decision for the patient. It asks five questions: (1) Is the current clinical situation an emergency, and is there an order for not attempting resuscitation? (2) What is the risk-benefit ratio, taking into consideration the patient's goals and values? (3) How applicable is the advance directive in this particular situation? (4) Did the patient give his or her surrogate leeway for overriding the advance directive? (5) How well does the surrogate represent the patient's best interests? Asking and applying these questions to a particular case, the authors suggest, facilitate conflict resolution, and I would agree.

This paper is an important addition to the literature on decision making about medical treatments. While I think many physicians engage in and successfully achieve conflict resolution in circumstances similar to those portrayed in the article, the paper nonetheless provides a succinct and useful commentary on a difficult area in medical practice.

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