term outcome. According to Warkany: “The unsatisfactoriness of our knowledge in this area is due, to a great extent, to the false label attached to these children, whose records are pooled with those of the prematures. The lack of separation of the 2 types of children underweight at birth has led to a neglect of observations and recordings necessary for a better knowledge of this field.” Indeed a study in 1965 showed that there were as many term as preterm infants born weighing <2500 g in the United States, and that the majority of preterm infants were actually born with a birth weight of >2500 g.7 Building on these reports and the Lubchenco fetal growth curves, Battaglia and Lubchenco8 then proposed the well known classification system of large for gestational age, small for gestational age, and appropriate for gestational age for determining at-risk infants for various medical problems, initially focusing on increased mortality rate6 and hypoglycemia.9 Usher10 and Farr11,12 went on to begin the description of the physical characteristics differentiating premature and small for gestational age infants that also remain in wide use today.

After 35 years, the observations made by Lubchenco remain a keystone in the practice of neonatology. This work is truly a landmark in its field.

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COMMENTARY


Comments by Jack P. Shonkoff, MD

ABSTRACT OF ORIGINAL ARTICLE. This report describes a constellation of clinical features found in 25 children with a history of an illness or accident from which they recovered, despite their parents’ anticipation of a fatal outcome. The paper proposes the hypothesis that children who are expected by their parents to die prematurely often react with a disturbance in psychosocial development that is rooted in the parent-child relationship, which the authors characterize as a vulnerable child syndrome. The essential features of the proposed syndrome include difficulty with separation, infantile behavior, bodily overconcerns, and school underachievement. The paper provides an overview of predisposing factors and determinants of the presenting symptoms, along with suggestions for both clinical management and primary prevention.

COMMENTARY

This classic paper by Green and Solnit illustrates the essence of the behavioral–developmental dimension of clinical pediatrics. Its brilliance is reflected in both its seminal creativity and its enduring salience over more than 3 decades. Its relevance for the practicing pediatrician remains vital to this day, and its message is particularly compelling in view of the challenges facing our highly dynamic health care system. Its implications for the academic community are similarly worthy of serious reflection.

The core contribution of this paper is the extent to which it provides a rich conceptual framework for the assessment and management of a cluster of “bread and butter” clinical concerns that permeate the worlds of primary and tertiary care pediatrics. The symptomatology that captured the attention of
the authors (ie, separation difficulties, infantilization, bodily overconcern, and school underachievement) is pervasive and highly variable. The concept of “the dying child,” which underlies the model, is a relatively infrequent event, yet surprisingly, not an uncommon parental concern. Moreover, as the accelerating pace of medical technology leads to an even greater decrease in childhood mortality, the potential interpersonal consequences of the current market-driven culture in health care delivery reinforce the compelling message that this paper has to offer for contemporary pediatric practice.

The most important contribution of this report is the extent to which it underscores the critical importance of what physicians say (and don’t say) to parents. The lesson for the clinical community is powerful and clear. Anything that a pediatrician conveys to a mother or father, whether it is thought through clearly or not, can have enormous impact on them and their children. Moreover, the effect may not only be immediate, but it often can be long-lasting. Comments made at particularly sensitive moments are particularly potent—the initial communication of the diagnosis of a serious disease or disability; a casual comment about the potential implications of a presenting sign or symptom; a spontaneous remark about the severity of an acute illness; an off-the-cuff response to a parent’s question; a self-protective statement in the face of a worrisome clinical challenge. Even the most conscientious physicians cannot remember everything they say to parents in the course of a busy day. Yet, an especially poignant remark about a child, whether delivered deliberately or casually, is likely to be remembered and quoted verbatim by the parent forever.

A second major contribution of this paper is the extent to which it sensitizes the pediatric community to the powerful influence of the underlying psychodynamics of the parent–child relationship on the evolution of individual child behavior and development. Within this context, the Green and Solnit collaboration illustrates the common conceptual base that informs the clinical practice of both pediatrics and child psychiatry in the complex realm of psychosocial assessment and intervention. The underlying lesson for both disciplines is quite clear. The science of human behavior is shared, the clinical responsibilities are divided, and appropriate triage is decided in part by the nature of the clinical concern and in part by the skills and confidence of the individual clinician. A sophisticated understanding of psychodynamic principles, including the impact of unconscious influences, cannot be the sole province of the psychiatrist. The management of common behavioral concerns in the pediatric setting, such as issues related to separation or infantilization, is best addressed within a sophisticated conceptual framework and not simply through the reactive prescription of practical management suggestions.

One useful litmus test for identifying a “classic” paper is the determination of its versatility and durability as a useful teaching tool. In this respect, Green and Solnit convey an important set of principles for clinicians, educators, and researchers that have significant contemporary appeal. Indeed, this is the quintessential teaching paper in its presentation of a clinical phenomenon that lends itself to rich analysis and discussion at multiple levels, from that of the naïve student who is learning how to take a basic pediatric history to the experienced clinician who wishes to engage in a case review with his or her most sophisticated colleagues.

For the clinical practice of pediatrics, the message of this article is powerful and explicit. Notwithstanding dramatic advances in medical technology (and indeed, at times, because of them), the art of communication must remain at the heart of the delivery of high-quality health care. A competent pediatrician must be a skilled listener and a sensitive conveyor of both information and affect. The morbidity that follows ineffective communication is sometimes dramatic but more often insidious. Our capacity to prevent death in children is far beyond where it was when Green and Solnit coined the term “vulnerable child syndrome” in 1964. The health care environment is exceedingly more complex, and medical services are delivered by a greater variety of providers in a system that is placing increasing emphasis on the principles of efficiency and cost-containment. Simultaneously, the demand for accountability continues to grow, and the search for quantifiable outcome measures is relentless. Within this new culture, how parents feel and what they understand about their child’s health can be trivialized easily and lost in the shuffle. Although the costs of the vulnerable child syndrome actually may be quite high, not only in human terms but also in excess health care use, they are exceedingly difficult to track. In a market-driven medical system that is focused sharply on the bottom line, the enduring message from Green and Solnit reminds us that the “expense” of a pediatrician’s time spent speaking with and listening to parents represents one of the most important services that the child health care system has to offer. Furthermore, when provided skillfully, effective communication can be one of our most cost-effective “treatments.”

Finally, this classic paper is very much worth rereading from time to time by the pediatric research community. Ironically, one might ask whether this study would make it past the current editorial board of Pediatrics. Imagine the comments of the outside reviewers: “the methodology is not well described”; “the criteria for sample selection are unclear, and it is difficult to infer a reasonable conclusion from this obvious sample of convenience”; “the absence of a more extensive database on the cases presented makes this nothing more than a collection of anecdotal case reports for which it is impossible to rule out alternative explanatory factors.” And yet, notwithstanding its limitations based on contemporary publication standards, this paper reflects a higher level of creative thinking, more wisdom, and greater relevance for both advancing our conceptual thinking and guiding clinical practice than almost anything else that has been written on this phenomenon before or since its publication.

What is the lesson for the research community?
Certainly, it is not to minimize the importance of rigorous study design, careful sample selection, and meticulous data collection and analysis. Indeed, the growing sophistication of our capacity to investigate the domains of behavioral and developmental pediatrics is worthy of both appreciation and respect. Nevertheless, this report demonstrates the value of reflecting thoughtfully about one’s clinical experiences, and the power of transforming simple clinical insights into sophisticated conceptual models that generate testable hypotheses. As noted by others, there is nothing as practical as a good theory and nothing as precious as the wisdom of a wise and thoughtful clinician.

Fifty years of Pediatrics has generated a rich and broad-based legacy of knowledge that has advanced our capacity to secure greater health for children. The conceptualization of the vulnerable child syndrome by Green and Solnit 35 years ago shines as a beacon within that legacy. It speaks to both the art and the science of doctor–patient communication, the benefits of cross-disciplinary collaboration, and the importance of the interactive relationship among pediatricians, parents, and children.

The world of pediatrics has changed in profound ways since this paper was first published. Yet it contains a timeless message that may be even more relevant today than it was in the 1960s. Time well spent listening to and talking with parents and children is time well invested. And time well invested in the physical and psychological health of children and their families is what pediatrics is all about.

**COMMENTARY**


Comments by Sanford N. Cohen, MD

ABSTRACT OF ORIGINAL ARTICLE. Objective. Children with iron poisoning, and mongrel dogs studied under laboratory conditions, were evaluated to explore the safety and effectiveness of the use of desferrioxamine in acute iron intoxication as reported in the 1965 paper.

Methodology. Twelve children admitted to a pediatric unit after iron ingestion were subjected to gastric lavage (10) and treatment either with intravenous desferrioxamine (9) or with a combination of intravenous and enteral (gavage) desferrioxamine (3). Serum iron levels before and after therapy, urinary excretion of iron, and symptoms before and after therapy were all measured.

Mongrel dogs (23) were fasted overnight and then given toxic doses of ferrous sulfate intraduodenally under general anesthesia. Controls (14) were observed for serum iron, arterial pH, and hematocrit, and mean arterial blood pressures. The 9 dogs treated were given desferrioxamine both intravenously and intraduodenally, whereas the controls were observed without treatment. Four additional dogs were treated with a lethal dose of iron that was firstcomplexed with desferrioxamine and then administered intraduodenally. Another 2 dogs received a slow intravenous infusion of either ferrous or ferric iron, and 2 others were given the same amount of iron, but as a complex with desferrioxamine. Other studies were performed on dogs to evaluate the effect of desferrioxamine on arterial blood pressure and the toxicity of the iron-desferrioxamine complex.

Results. Rapid intravenous infusion produced hypotension in two children, one of whom had a seizure. Significant amounts of iron were discovered in the urine of all patients. None had progression of symptoms while in the hospital. One child who was in coma when admitted was noted to be developmentally retarded 5 months later.

All 14 control dogs died by 10 hours after duodenal instillation of iron. Three of the dogs treated survived, but these were the three with the lowest pretreatment iron levels. The enteral administration of lethal doses of iron previously complexed with desferrioxamine resulted in the excretion of large amounts of iron in the urine in 4 dogs and in one of three children treated with moderate amounts of iron complexed with desferrioxamine. The children were not affected adversely by this treatment, but the dogs experienced a marked drop in blood pressure and died within a few hours.

Conclusions. The use of desferrioxamine results in the rapid excretion of more iron in the urine than would occur without such treatment. The drug produces hypotension when administered rapidly by parenteral infusion. The enteral administration of the drug to poisoned dogs or children does not prevent the absorption of iron; indeed the complex is freely absorbable. The desferrioxamine–iron complex is toxic to the kidneys.

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