

COMMENTARY

Selective resuscitation in premature twins: an ethical analysis

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Selective resuscitation refers to the practice of providing resuscitative efforts to one or some (but not all) infants born in the setting of multiple gestation. When one fetus is known to have a severe anomaly or severe growth restriction, parents are sometimes offered this option. In the setting of extreme prematurity, in the absence of an anomaly or severe growth restriction, parents are generally expected to make one unified decision for all the infants involved. The introduction of the Outcome Estimator, a tool that provides the ability to make individual outcome predictions for each fetus in a multiple gestation at borderline gestational age, based on contributing variables such as weight and gender, has led to the ethical dilemma of whether parents in this setting should also be offered the option of selective resuscitation. No convincing ethical argument for denying the parents the right to decide for each individual infant is apparent.

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Introduction

The question as to whether to provide resuscitative efforts at borderline gestational age has for many years been acknowledged as a difficult ethical dilemma, with neonatologists commonly deferring to informed parents in this situation. That is, once the risks of death and disability have been reviewed, neonatologists commonly respect parental preference as to whether aggressive resuscitative measures should be instituted. Selective resuscitation, here defined as the resuscitation of one or some (but not all) infants born from a multiple gestation, has sometimes been requested by parents and carried out by neonatologists. This may occur, for example, when one twin has an anomaly that carries an extremely poor prognosis. Selective resuscitation, in the absence of a significant anomaly or profound growth restriction, has generally not been a consideration in multiple gestations at borderline gestational age.

Our increasing (though still imperfect) ability to provide a quantitative prognosis at borderline gestational age for each

individual fetus raises the possibility that parents may request selective resuscitation more often. Such a situation has in fact arisen in our Newborn Intensive Care Unit, has led to a great deal of discussion, and will likely recur here and elsewhere. What follows is a case scenario based on (though not identical to) what occurred, followed by an analysis of the question: Should neonatologists comply with a parental request for selective resuscitation in the setting of extreme prematurity?

Case presentation

A prenatal consultation was performed for parents with discordant gender twins at 23 weeks gestational age. The mother had presented to her obstetrician earlier that day in preterm labor, and was admitted to the hospital for monitoring and the administration of antenatal corticosteroids. At 23 weeks gestation, given the relatively high likelihood of a poor outcome, the practice at our institution, consistent with American Academy of Pediatrics (AAP) guidelines,¹ is to permit parents to make an informed decision as to whether or not they wish to have resuscitative efforts initiated after birth.

Utilizing the on-line Outcome Estimator recently made available by the National Institute of Child Health and Human Development's (NICHD) Neonatal Research Network,² the chances of survival and disability were presented to the family. The likelihood of survival for the female twin, who had an estimated fetal weight of 650 g, was predicted to be 51%, with a likelihood of survival without profound impairment of 35%. For the male twin, who had an estimated fetal weight of 510 g, the predicted likelihood of survival and survival without profound impairment was 24% and 13%, respectively. The parents were asked to consider this information so that a decision to either withhold or initiate postnatal resuscitation could soon be made in collaboration with the medical team.

Several hours later, the parents were asked whether or not they had reached a decision, to which they responded, "Yes. Based on what you have told us, we would like you to resuscitate our daughter, but not our son." This unforeseen parental request resulted in deliberation among the neonatology section as to whether resuscitation could ethically be offered to one twin but not the other.

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The neonatologists were uncomfortable with the parents' request, and after much discussion, it was decided that their request should not be agreed to. The parents would have to make one choice for both twins, either to withhold or provide resuscitation and intensive care measures. When this was presented to the parents, their response without objection was to request resuscitative efforts for both twins, which were carried out.

Resuscitation in the 'Gray Zone'

The pediatric profession has widely acknowledged that there exists a certain 'gray zone' of gestational ages, wherein it is not clear whether resuscitation should be attempted, because of the high likelihood of death or disability. Within that gray zone, it has been recommended that informed parents be permitted to choose. There is some variation in opinion regarding the exact location of the margins of the gray zone, but in the United States and the United Kingdom, at least, 23 weeks generally falls within it. Both the AAP and the Nuffield Council have recommended that, at 23 weeks, the decision as to whether to attempt resuscitation should be deferred to the parents.^{1,3}

When counseling parents regarding the impending delivery of an extremely preterm newborn, neonatologists have generally provided prognostic information based on the best obstetrical estimate of gestational age and/or the estimated fetal weight. Sometimes, it may be divulged that females at extremely low birth weight tend to have better outcomes than males, and/or that antenatal steroids improve the chances of intact survival. Until recently, however, the effects of these additional factors have not typically been quantified during counseling.

The past year has seen a major advance in the availability of prognostic information, as a result of the work of Tyson *et al.*⁴ and the NICHD. They developed an on-line calculator for estimating the likelihood of survival and disability, using data from 4446 infants born from 22 to 25 weeks gestation over a 6-year period. Rather than basing these determinations on gestational age or birth weight alone, predicted outcomes are calculated based on gestational age, birth weight, gender, receipt of antenatal steroids and single versus multiple gestation, each of which has been shown to influence outcome. The Outcome Estimator is of course not perfect, and numerical likelihoods need to be considered in that light, but it nevertheless represents a major step forward in the effort to provide parents with information to assist with these most difficult decisions.

Tyson and others have rightly pointed out that, with the availability of these data and the Outcome Estimator, basing resuscitation decisions on gestational age alone no longer seems appropriate.^{4,5} For example, it can be seen through use of this database that a 23-week, 610-g singleton female who received antenatal steroids is twice as likely to survive as a 24-week, 520-g twin male without the benefit of antenatal steroids (predicted

survival 41% vs 19%). Given that information, it would make little sense to decide upon resuscitation, or the limits of parental authority, based on gestational age alone. It is this ability to be more specific in prognosis, and in particular to provide a separate prognosis for each twin, that has brought forward the ethical question of selective resuscitation in multiple gestation.

Ethical considerations in selective resuscitation

Selective resuscitation is not a new concept, nor an unheard of practice. Many neonatologists and parents have been faced with this consideration, for example, in the case of a significant congenital anomaly diagnosed prenatally in one twin. Furthermore, many who object to selective resuscitation in the case presented would consider it acceptable in other situations, such as extremely premature twins in which one is markedly hydropic and the other apparently normal. This new dilemma, however, brings into sharper focus the importance of gender in the outcome. The parental request faced by neonatologists may no longer be limited to 'Save the larger one,' or 'Save the normal one,' but rather 'Save the girl.' Indeed, parents might request selective resuscitation in extremely premature twins where the only known difference is gender.

The response by the neonatologists when confronted with the case at hand was that it seemed unacceptable to resuscitate the girl but not the boy. Selective resuscitation, at least on that basis, seemed inappropriate, though the neonatologists had difficulty identifying why. Although the moral intuitions of experienced clinicians should carry significant weight, they cannot stand alone as an ethical justification for overruling the parents' right to informed consent for each of their children. In addition, these intuitions may be inconsistent with our judgments under analogous circumstances. Consider, for example, if these two 23-week siblings were born not as twins but to the same parents, one year apart. It would be acceptable to many neonatologists (and consistent with professional guidelines) to defer to parental discretion in each case and, if requested, to resuscitate one sibling but not the other. What would be the difference, ethically speaking, between these two situations? Why do we find parental discretion morally acceptable in one situation but not the other? Perhaps the best approach would be to examine what makes parental discretion generally acceptable at 23 weeks.

At least two justifications are commonly invoked for allowing parental discretion. The first is an appeal to the 'best interests' argument, which essentially weighs the anticipated benefits and burdens to the child of the proposed treatment (in this case, resuscitation and ongoing intensive care). In this setting, there is an assumption that the child's best interest is a very difficult and subjective assessment, laden with value judgments, and in such cases the values and judgment of parents should generally prevail.⁶ Beyond the margins of the gray zone, wherein the child's best

interests seem clear, physicians generally do not defer to parents. That is, below some minimal gestational age the burdens of resuscitation and intensive care clearly outweigh the possible benefits, and above some point the benefits clearly outweigh the burdens. In each of these settings, neonatologists do not give parents a choice regarding resuscitation. But when there is a significant degree of uncertainty regarding the balance of benefits and burdens, deference to parental wishes seems appropriate, and is widely recommended.⁷

The second justification for parental discretion often cited is that the parents, more than the physicians or others (except perhaps the child him/herself), will bear the burden of the decision. Should the child survive with severe disability, for example, this could have a profound impact on their marriage, their other children, their financial stability and other aspects of their lives as well. There are at least two problems with this argument. First, some parents do not assume ultimate responsibility for the child's care, leaving it instead to relatives or others. Second, it is not clear that concerns about the burdens to family should be allowed to trump concerns about the child's own best interests. The validity of this justification and its counter-arguments are beyond the scope of this essay, and in any case are not essential to this analysis. The relevant point for this discussion is not whether these justifications are valid, but rather whether they are applicable when the two children are born one year apart, but not (or less so) when they are born as twins. No such difference is apparent. Therefore, even if one were to recognize the validity of this justification for allowing parental discretion, it does not provide a reason to give parents a choice in one setting but not the other.

There is no clear evidence that either of these justifications applies less to twins than to singletons born one year apart. The justifications for allowing (or in fact requiring) parental choice appear to apply equally to the two situations. If we can identify no morally relevant difference between these scenarios, then there appears to be no moral rationale for allowing parents to decide for each infant in one setting but not the other.

Perhaps if the parents' decision had been based on what the physicians considered an inappropriate motive, it might serve as a reason to deny their request. For example, if the request to attempt resuscitation for their daughter, but not their son, was based on gender preference, this could seem unacceptable based on the principle of justice or fairness.⁸ Justice requires that equals be treated equally, and if we are to treat patients differently we need to identify a morally relevant difference. Gender alone does not seem to qualify as a morally relevant difference. However, the parental decision in this case did not appear to be based simply on a preference for a daughter rather than a son. Rather, their request for selective resuscitation appears to have been based on prognosis, just as for extremely preterm twins when one has hydrops. The prognostic information was presented to them by the neonatologist, presumably for the purpose of reaching their decision. Therefore we

can hardly fault them, or restrict their right to decide, for basing their decision on that information.

Justice and the counter-argument

If justice requires us (and perhaps the parents as well) to identify a morally relevant difference in order to treat the two infants differently, then the question is whether prognosis can itself be seen as morally relevant to the decision to resuscitate. Physicians, and neonatologists specifically, have generally (and rightly) concluded that it is. For example, in the AAP Textbook on Neonatal Resuscitation, situations wherein resuscitation may ethically be withheld are those with poor prognoses.¹ Physicians may differ on the specifics of how poor a prognosis must be to justify withholding a given treatment, but few would argue that prognosis is not relevant to the decision. This, in the final analysis, is why we find it acceptable to withhold resuscitation in certain situations, such as 21 weeks gestation or Trisomy 13, and why many neonatologists would also find it acceptable to resuscitate a normal infant born at 23 weeks while at the same time not resuscitating his hydropic twin. Prognosis is a morally relevant difference. Thus it would appear that treating twins differently based on prognosis is not contrary to the principle of justice. A consideration based on justice or fairness to the parents may, in fact, have been not only to permit selective resuscitation in the case described, but perhaps even to require it if the parents so request.

Prognosis, relevant differences and thresholds

If we accept that a difference in prognosis justifies different approaches to resuscitation, we still need to consider how much different the prognosis has to be in order to be relevant. Selective resuscitation would be justified only once that threshold has been exceeded. If one twin were predicted to have a 24% chance of survival and the other a 21% chance, for example, it would not seem like a significant difference. On the other hand, if size were so discordant and/or a critical anomaly were known such that one twin had a 50% chance of survival and the other less than 5%, this seems different enough to allow different treatment. What, then, should be the threshold of difference in prognosis needed to justify different treatment?

The answer is not clear. One possible approach would be to determine the minimum difference based on the margin of error of the tools. Such an approach, however, might tell us if the difference in predicted outcomes is statistically significant, but would not tell us whether it is clinically or morally significant. Ultimately, locating the threshold will be a difficult and subjective decision, and needs to be recognized as such. But simply recognizing that there is some threshold, even if we are unable to agree on its exact location, leads us to the acknowledgment that, in

some cases, parents should be permitted to make different resuscitation choices for their twins.

Conclusion

Selective resuscitation based on prognosis is not a new idea, though previously it has largely been restricted to scenarios involving multiple gestation where one infant was known to have a minimal chance of survival. With the availability of the NICHD Outcome Estimator, however, neonatologists will now have prognostic information available for each twin, which may differ significantly based solely on differences in size and/or gender. There is now a consensus in the medical, legal and ethical literature that at borderline gestational age parents have the right to choose whether or not to resuscitate. In the case of multiple gestation, if there is a significant difference in prognosis between infants, then treating them differently with regard to resuscitation does not violate that consensus, nor is it a violation of the principle of justice. Moreover, there is no apparent ethical justification for denying the parents the right to choose individually for each child. This may present an unpleasant and awkward situation for the clinical team, but that fact alone is not sufficient justification for denying the parents a right that they are generally accorded when making decisions at borderline gestational age.

For those who consider selective resuscitation of twins based on prognosis to be unacceptable, the task then remains to identify the ethical justification for denying the parents their right to decide for each child.

Conflict of interest

The authors declare no conflict of interest.

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