Ethics of Rh Exposure to Rh Negative or Unknown Females of Childbearing Potential

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Disclosures

- Professional honorarium: Fellowships at Auschwitz for the Study of Professional Ethics (FASPE)

Roadmap

- A case
- The conclusion
- Why you should care
- Chapter 1: Decision-making standards
- Chapter 2: Doctrine of Double Effect
- Chapter 3: Obligations to Minimize Harms
- Conclusion

- Jane is a 34-year-old woman who is being seen by Dr. Evans, her obstetrician, having just learned that she is pregnant. Jane's PMH is significant for a lengthy hospitalization when she was 19 years old, after a gunshot wound to the chest. During her resuscitation, she received several units of RhD-positive type O blood, resulting in D-alloimmunization. This was only explained to her after her first pregnancy was complicated by hemolytic disease of the fetus and newborn (HDFN), resulting in miscarriage. This was incredibly difficult for Jane, leading to a lengthy period of substance abuse and major depression. Jane, now pregnant for the second time, is discussing the risk of HDFN with Dr. Evans and says "I would rather have died after the shooting than deal with this again. How could they make that decision without my permission?" Dr. Evans wonders about the ethics of giving a potentially life-saving transfusion despite the future risk of HDFN.

Conclusion

- Utilization of RhD-positive blood products, including LTOWB, in the early trauma resuscitation of FCPs is ethically appropriate.
- By accepting the potential future risk of HDFN, hospitals generate obligations to minimize harms.

Why should you care?

- You already agree with the conclusion—why should you keep listening?
- The blood bank director or administrator who won't sign off on LTOWB probably has *ethics questions*
- The patient you counsel after RhD+ exposure or alloimmunization has *ethics questions*
- Ethics questions are best approached with ethics answers

Brief Background

- LTOWB is independently associated with 1.2- to 2.0-fold reduction in mortality in trauma patients
- The overall risk of fatal HDFN is modeled at 0.3%
- Over 300 US trauma centers have adopted LTOWB as their first-line resuscitation fluid
- Some authors have noted the complexity of the decision for FCPs and the need for closer ethical analysis

- What decision-making standard should be used when patients present for trauma resuscitation?

Chapter 1: Decision-making Standards

- Usually
  - Adults assumed to have capacity
  - Children assumed to lack capacity
- This leads to differing decisional standards
- Substituted judgment: What would the patient have chosen were she deciding for herself?
- Best interest standard: What is the best decision for this patient, all things considered?

Decision-making in trauma resuscitation

- Medical trainees are taught to use substituted judgment for adults
- In a time-pressured situation, this is impossible
- Decisions for patients of *any age* who are resuscitated in the emergency setting should be made with the best-interest standard

Jane's question

- "How could they make this decision without my permission?"
- Understanding the DM standard justifies the paternalistic approach
- *However* this shifts the ethical burden onto the physician, who has now taken the role of decision-maker

- How should medical teams analyze the ethics of this decision?

Chapter 2: Doctrine of Double Effect

- Are actions with both a good and a bad effect ethically permissible?
- War ethics: is a strike on a high-value target justified even though it risks civilian lives?

Doctrine of Double Effect

1. The act itself must be morally good or at least indifferent.

2. The agent may not positively will the bad effect but may permit it. If he could attain the good effect without the bad effect he should do so.

3. The good effect must be produced directly by the action, not by the bad effect.

4. The good effect must be sufficiently desirable to compensate for the allowing of the bad effect.

(5. All efforts should be made to minimize foreseen potential harms.)

Moral Good

- Use of blood products early in trauma resuscitation markedly improves mortality outcomes
- Use of LTOWB is independently associated with improved mortality outcomes
- Administration of blood is morally neutral (in most religious traditions)
- Saving lives through a transfusion program is morally good

- DDE 1, check

Avoid Bad Effect

- Clinicians do not desire HDFN
- HDFN can theoretically be avoided by:
  - Using RhD-negative LTOWB
  - Delaying transfusion until blood typing is complete
- It is often not possible to obtain the LTOWB mortality benefit while avoiding potential future risk of HDFN

- DDE 2, check

Means to an End

- Good effects are entirely related to transfusion and are unrelated to the development of HDFN
- In fact, the bad effect cannot occur *unless* the good effect has already occurred

- DDE 3, check

Proportionality

- Quantitative analysis is useful at this stage
- Survival benefit versus very small future risk of HDFN

- DDE 4, check

Minimizing Harms

- Justifying an intervention while accepting the risk of harms creates a moral obligation

- What obligations are generated when medical teams accept the potential for harm on behalf of a patient?

Chapter 3: Obligation to Minimize Harms

- Potential future harm of HDFN
  - Promote RhD-negative donation
  - Encourage move from RhD-negative RBCs to RhD-negative LTOWB
  - Thoughtful design of transfusion programs
- Harm related to preferential use of RhD-negative component therapy over RhD-positive LTOWB
  - Will become more clear with more robust data
- Inequity generated by differential treatment of female and male victims of trauma
  - Hospitals may respond to issue one by incurring a mortality risk for females

Obligation to Minimize Harms

- When RhD-positive blood is administered to RhD-negative FCPs:
  - Counsel patients about future risk of HDFN
  - All RhD-negative FCPs who receive RhD-positive blood should be offered anti-D screening (optimal timing TBD)
  - Work toward appropriate access to prenatal care
- Truth-telling and disclosure require clinicians to maintain familiarity with ethical reasoning

Conclusion

- Utilization of RhD-positive blood products, including LTOWB, in the early resuscitation of FCPs is an ethically appropriate (and perhaps preferable) approach.
- By accepting the potential future risk of HDFN, hospitals generate obligations to promote blood donation, evaluate for alloimmunization, counsel patients on the future risk of HDFN, and maintain an understanding of the ethical rationale for RhD-positive blood transfusion.

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