

Immunosuppressive Therapy for Autoimmune Disease and Pregnancy Outcomes

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Abstract

The purpose of this study is to analyze pregnancy outcomes reported to the Neoral® Pregnancy registry (NPR) which collects data from women with psoriasis or rheumatoid arthritis who have taken Neoral® (cyclosporine, USP MODIFIED) during pregnancy. Since the NPR's establishment, the NPR has recorded 10 live births, 1 ectopic pregnancy, with no premature deliveries. The mean birth weight of the infants (BW) was 3516.7 ± 518 g. By comparison, the National Transplantation Pregnancy Registry (NTPR) reports a cohort of 129 female kidney transplant recipients taking Neoral® during pregnancy with 158 livebirths, with a BW of 2541 ± 703 g; 48% were premature deliveries (<37 wks). In conclusion, these findings suggest the need for additional studies to further evaluate the impact of comorbidities and other factors on pregnancy outcomes in two disparate populations maintained on the same immunosuppressive agent during pregnancy.

Introduction

Cyclosporine A (CsA) was initially used as successful therapy against organ rejection and as a result, the transplant literature was the first to describe its use during pregnancy. In the transplant population, CsA exposure has been associated with premature delivery, low birthweight and higher incidences of comorbidities during pregnancy than the general population. However, it has yet to be determined if these adverse outcomes are directly related to CsA exposure during pregnancy or to maternal comorbidities regardless of therapy, or to both. Transplant recipients are maintained on multiple drug regimens which further complicates analyses.

In 1997, The Food and Drug Administration approved Neoral® (cyclosporine, USP MODIFIED) for use in severe psoriasis, an autoimmune disease not associated with significant comorbidities and where patients rarely take multiple systemic medications.

The purpose of this study was to assess the role of comorbidities and other factors in the pregnancy outcomes of women taking Neoral® by comparing data from two disparate populations; kidney transplant recipients and psoriasis patients.

Methods

Data for the NPR were collected via questionnaires, phone interviews and direct patient recruitment. Data for the transplant population were provided by the NTPR.

Only data from pregnant women taking Neoral® (cyclosporine, USP MODIFIED) were used for this study.

Results

- The mean gestational age for the psoriasis population is significantly higher than that of kidney transplant population (p value 0.001).
- The mean birth weight for psoriasis population is significantly higher than that of the kidney transplant population (p value 0.001)
- The kidney transplant population had a higher prevalence of significant comorbidities such as drug-related hypertension, infections, preeclampsia and gestational diabetes than both the psoriasis patients and the US general population.
- Mean maternal age for the kidney transplant population is 31.4 ± 5.0 yrs
- Mean maternal age for the psoriasis population is 29.9 ± 2.7 yrs

Pregnancy Data

	Kidney Transplant Recipients	Psoriasis Patients
Outcomes*	199	11
Therapeutic Abortions	2 (1%)	0%
Spontaneous abortions	35 (18%)	0%
Ectopic	1 (0.5%)	9.1%
Stillborn	3 (1.5%)	0%
Livebirths	158 (79%)	90.9%
Mean gestational age	36 ± 2.9 wks	40 ± 0.8 wks
Premature (<37 weeks)	71 (48%)	0%
Mean Birthweight	2541 ± 703 g	3517 ± 518 g
Low Birthweight (<2500g)	67 (43%)	0%

* Outcomes include twins

Pregnancy Outcomes

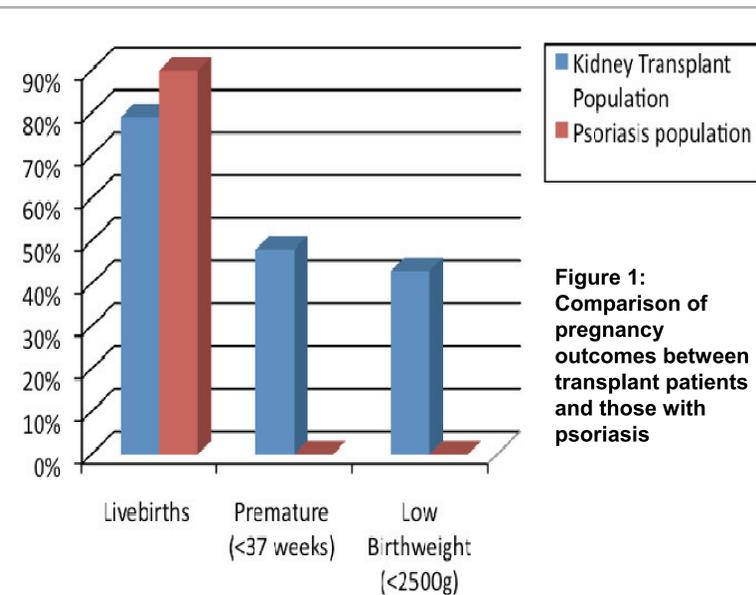


Figure 1: Comparison of pregnancy outcomes between transplant patients and those with psoriasis

Maternal Factors

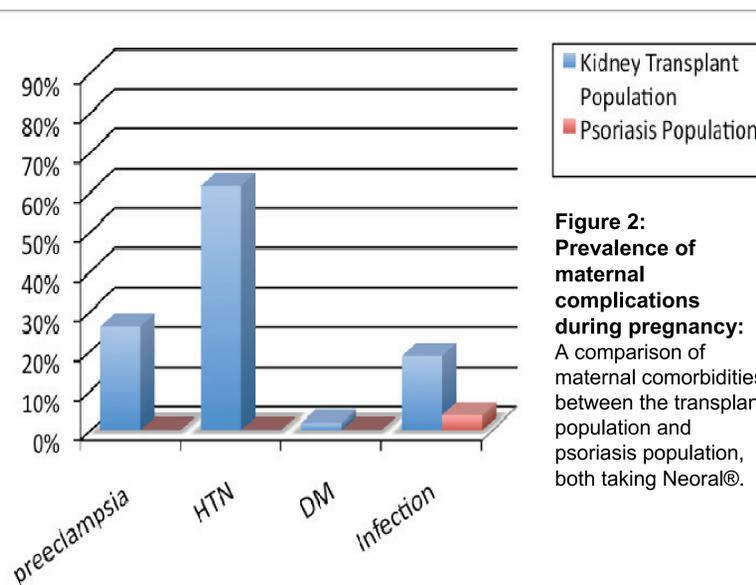


Figure 2: Prevalence of maternal complications during pregnancy: A comparison of maternal comorbidities between the transplant population and psoriasis population, both taking Neoral®.

Conclusions

- Cyclosporine exposure during pregnancy in the transplant population does appear to be associated with premature delivery and low infant birthweight.
- Data from the NPR show that cyclosporine exposure during pregnancy in women with psoriasis does not appear to be associated with low gestational age or low infant birthweight (Figure 1).
- Maternal comorbidities or other factors, such as multiple drug regimens, likely play a role in the higher rates of premature delivery and low birthweight infants in the kidney transplant population (Figure 2).
- Further investigation is warranted to evaluate the impact of comorbidities and other factors on pregnancy outcomes of women taking Neoral®.

Abbreviations

- CsA: Cyclosporine A
- NPR: Neoral® Pregnancy Registry
- NTPR: National Transplantation Pregnancy Registry
- HTN: Hypertension
- DM: Diabetes Mellitus

To contact the NPR and report additional pregnancies:

Thomas Jefferson University
1025 Walnut Street, 605 College Building,
Philadelphia, PA 19107, USA
Phone: Toll-free 888-522-5581

Email: Neoral.Registry@jefferson.edu
Website: <http://www.jefferson.edu/neoral>

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