DDAVP use during pregnancy: an analysis of its safety for mother and child

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Authors' objectives
To review the use of synthetic 1-deamino-8-D-arginine-vasopressin (DDAVP) for the management of diabetes insipidus (DI) during pregnancy and its effects on both mother and child.

Searching
MEDLINE (via Ovid) was searched between 1976 and July 1997 using the keywords desmopressin or DDAVP crossed with the term pregnancy. Bibliographies of all retrieved abstracts, review articles and letters were searched for additional articles.

Study selection
Study designs of evaluations included in the review
Reports on which DDAVP was administered during pregnancy with data collection on pregnant women were included if the report was not published elsewhere in a similar format. One study was excluded due to subsequent publication of a more detailed report and another study of the effects of DDAVP on oligohydramnios was also omitted.

Specific interventions included in the review
DDAVP was administered for therapeutic management (calculated daily dose 29.2 micrograms intra nasally; standard deviation 21.9, range: 7.5 to 100) and for diagnostic purposes (test doses of 20 micrograms intravenously over 20 minutes and 4 micrograms intravenously). Duration of therapy ranged from part to throughout pregnancy.

Participants included in the review
Participants were pregnant women either with diabetes insipidus (DI) or undergoing testing during pregnancy for this condition. Mean age 24.3 years (standard deviation 4.3, range: 19 to 33). Most women were pregnant for the first or second time. Mechanisms for the development of DI included head injury, hypothalamic or pituitary mass, pregnancy associated DI, ‘central cause’, and idiopathic.

Outcomes assessed in the review
Maternal and neonatal outcomes were considered. Each pregnancy was considered as one case, including reports describing more than one pregnancy in the same woman.

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The author does not state that they assessed validity.

Data extraction
The following data were extracted: type of DI and time of onset; current age of women; obstetric history; dose and duration of use of DDAVP during current pregnancy; other therapy; relevant maternal outcome; type of delivery and gestational age; and birth weight and neonatal outcome.

Methods of synthesis
How were the studies combined?
Cases were summed across studies.
How were differences between studies investigated?
The author does not state how differences between the studies were investigated.

Results of the review
Twenty reports were included (53 cases).

Therapeutic doses of DDAVP. Maternal outcomes (described in 14 cases). DI symptoms and water homeostasis were well managed. No reports of isolated hypertension. Three cases of pre-eclampsia giving an event rate of 21.4% (95% CI: 4.7, 45.8). No significant difference from expected rate of 5% in general population (Fishers exact test, 2P=0.08). Mode of delivery (22 women): vaginal delivery (15 women); Caesarean section for various reasons (6 women); 'uneventful' (1 case). Intravenous oxytocin infusion peripartum (5 women): no evidence of maternal overload, metabolic derangement or uterine hyper stimulation.

Fifty live singletons born. Neonatal outcome (based on 49 children): mean gestational age at birth 37.4 weeks (standard deviation 1.3); estimated mean birth weight 2,963.8 g (standard deviation 453.6, range: 2,000 to 4,420). Forty-three neonates representing 87.8% were reported as healthy (95% CI: 77.2, 95.3). Six neonates developed problems: developed DI at 18 months of age (1 child); died due to severe cardiac anomalies (1 child); Downs Syndrome (2 children, one of who died of congestive heart failure); weighed under 2,500 g, survived (1 child); diagnosed as failure to thrive and hypotonia aged 21 months (1 child whose mother had taken carbamazepine until 8 weeks of gestational age). Fishers exact test for presence of 2 cases of congenital heart disease (event rate 4.1% with 95% CI: 0.40, 11.3) compared to expected rate of 0.81% in general population (2P=0.08).

The 10 cases receiving 30 micrograms or more per day had healthy children.

Authors' conclusions
The current evidence, although limited to case report data, supports the use of intra nasal DDAVP during pregnancy for the management of DI. It is unlikely to have any serious adverse effects on maternal health, labour and delivery or neonatal well- being.

CRD commentary
The aims and inclusion criteria were clearly stated. The discussion included consideration of the following: likely presence of enrolment bias; inability to adjust for the presence of co-intervention and confounding; variability in reporting of cases; lack of data on foetal effects of maternal DDAVP such as spontaneous abortion rate; and the likelihood of a type II error.

By limiting the literature search to one database, some relevant reports may have been omitted.

No details are given of methods used to select reports or to extract data. The strength of evidence offered was limited by the relative scarcity of relevant data.

The authors' conclusions are supported by the evidence presented though this evidence is based on a small sample size.

Implications of the review for practice and research
Practice: The author considers that the use of intra nasal DDAVP for DI during pregnancy is safe for both mother and child.

Research: The author considers that the development of a large detailed database of DDAVP use in pregnancy would be optimal to confirm findings of this review.

Bibliographic details
Survey 1998; 53(7): 450-455

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Subject indexing assigned by NLM

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.