Date:06 Feb 2017
Sources: Searched: Medline, Embase, NICE Evidence, DynaMed

West Middlesex University Hospital

Oxytocin Dosing Regime

Because oxytocin possesses slight antidiuretic activity, its prolonged IV administration at high doses in conjunction with large volumes of fluid, as may be the case in the treatment of inevitable or missed abortion or in the management of postpartum haemorrhage, may cause water intoxication associated with hyponatraemia. The combined antidiuretic effect of oxytocin and the IV fluid administration may cause fluid overload leading to a haemodynamic form of acute pulmonary oedema without hyponatraemia. To avoid these rare complications, the following precautions must be observed whenever high doses of oxytocin are administered over a long time: an electrolyte-containing diluent must be used (not dextrose); the volume of infused fluid should be kept low (by infusing oxytocin at a higher concentration than recommended for the induction or enhancement of labour at term); fluid intake by mouth must be restricted; a fluid balance chart should be kept, and serum electrolytes should be measured when electrolyte imbalance is suspected.

Caution should be exercised in patients with severe renal impairment because of possible water retention and possible accumulation of oxytocin.

Source: Electronic Medicines Compendium (emc) Oxytocin 10 IU/ml Concentrate for Solution for Infusion. URL: **http://www.medicines.org.uk/emc/medicine/31465** [Last Accessed 07 Feb 2017].

1. Oxytocin infusion in labor: The effect different indications and the use of different diluents on neonatal bilirubin levels

Author(s): Oral E.; Gezer A.; Cagdas A.; Pakkal N.

Source: Archives of Gynecology and Obstetrics; Jan 2003; vol. 267 (no. 3); p. 117-120

Publication Date: Jan 2003

Publication Type(s): Journal: Article

Available in full text at Archives of Gynecology and Obstetrics - from Springer Link Journals

Abstract: Objective: To investigate the relationship of neonatal bilirubin levels to oxytocin infusion and the diluent used for oxytocin infusion. Materials and methods: The study was carried out as a prospective, randomized study in Istanbul University Cerrahpasa School of Medicine, Department of Obstetrics and Gynecology between January to December in 1995. A total of 80 patients managed with oxytocin during labor, enrolled to the study. These patients randomly divided into isotonic % 0.9 saline (Group 1) and 5% glucose solutions (Group 2) by a consecutive order using a balanced block randomization scheme. Forty multiparous patients delivering without oxytocin infusion formed the control group (Group 3). The details of maternal age, gestational age, labor duration, mode of delivery, birth weight of the babies, total volume of fluid administered until delivery and total oxytocin dose were noted in each case. Sodium and initial bilirubin levels were measured in the cord blood. Later on, capillary blood bilirubin and hematocrit concentrations were measured on day 1 and 2 in the newborn nursery. The groups were compared according to these parameters. Results: The data of 29 patients in Group 1, 36 patients in Group 2 and 40 patients in Group 3 were suitable for analysis. The difference between study and control groups regarding the rate of hyponatremia, neonatal hyperbilirubinemia and neonatal jaundice was not statistically significant. Cord plasma sodium levels, cord plasma bilirubin levels and day 1 and 2 hematocrit and plasma bilirubin levels were not statistically different between the groups. Unrespectable of the diluent used, the cord plasma bilirubin levels and day 2 plasma bilirubin levels were significantly higher in the accelerated group. Conclusion: No significant effect of oxytocin infusion was revealed on neonatal hyperbilirubinemia unless oxytocin was for the augmentation of labor.

Database: EMBASE

2. Maternal and neonatal hyponatraemia: A comparison of Hartmanns solution with 5% dextrose for the delivery of oxytocin in labour

Author(s): Higgins J.; Gleeson R.; Holohan M.; Cooney C.; Darling M.

Source: European Journal of Obstetrics Gynecology and Reproductive Biology; Sep 1996; vol. 68 (no. 1); p. 47-48

Publication Date: Sep 1996

Publication Type(s): Journal: Article

Abstract: We performed a randomised controlled trial to compare the effect on neonatal and maternal serum sodium of using oxytocin in Hartmanns solution compared to the standard 5% Dextrose regimen for induction or augmentation in labour. We found significantly decreased maternal and neonatal serum sodium concentrations in the 5% Dextrose group compared to the Hartmanns group.

Database: EMBASE

3. Intrapartum fluid administration and sodium concentration in maternal and umbilical cord plasma

Author(s): Lao T.T.H.; Loong E.P.L.; Chin R.K.H.

Source: European Journal of Obstetrics Gynecology and Reproductive Biology; 1987; vol. 25 (no. 4); p. 271-276

Publication Date: 1987

Publication Type(s): Journal: Article

Abstract: Maternal and umbilical cord plasma sodium concentrations at delivery following routine labour ward management in uncomplicated pregnancies were studied. Three groups, each consisting of 16 patients, were recruited during labour. One group received 5% dextrose solution for administration of oxytocin. Another group received Hartmann's solution with epidural analgesia. The remaining group received no fluid (controls). There was no difference in the maternal and umbilical cord plasma sodium concentrations between patients who received 5% dextrose solution or Hartmann's solution and controls. Mild hyponatraemia (plasma sodium between 131 and 134 mmol/l) was common in all groups of mothers but severe hyponatraemia (< 130 mmol/L) was rare. Similarly transplacental hyponatraemia was uncommon. There was no correlation between maternal plasma sodium concentration and the amount of fluid given. It was concluded that intravenous 5% dextrose solution and Hartmann's solution given during labour would not lead to significant hyponatraemia in the mother or fetus if the volume given was less than 0.6 litre.

Database: EMBASE

4. Effects of using either saline or glucose as a vehicle for infusion in labour.

Author(s): Omigbodun, A O; Fajimi, J L; Adeleye, J A

Source: East African medical journal; Feb 1991; vol. 68 (no. 2); p. 88-92

Publication Date: Feb 1991

Publication Type(s): Randomized Controlled Trial Clinical Trial Journal Article

Available in full text at East African Medical Journal - from Free Access Content

Abstract: Seventy pregnant Nigerian women requiring oxytocin for the induction or augmentation of labour were randomized into two groups, one administered 5% glucose, and the other 0.9% saline as vehicle for oxytocin. Another group of seventy women who did not receive intravenous fluids in labour were included for comparison. Sodium ion concentration in maternal antepartum and postpartum plasma as well as umbilical cord plasma samples were estimated in all the patients. There was a statistically significant fall in the maternal postpartum plasma sodium concentration relative to the ante-partum values only in patients receiving 9% glucose solution (P less than 0.001). There was also a significant correlation between the sodium levels in maternal postpartum and cord plasma samples, suggesting that these changes were transmitted to the fetus transplacentally. The use of normal saline as a vehicle for oxytocin administration in parturient women can prevent the hyponatraemia associated with the use of 5% glucose for this purpose.

Database: Medline

5. Effects of two different protocols for pitocin induction on obstetric outcomes: A cohort study

Author(s): Ghidini A.; Rogers S.; Korker V.; Wohlleb D.; Quint-Bouzid M.; Poggi S.

Source: American Journal of Obstetrics and Gynecology; Jan 2011; vol. 204 (no. 1)

Publication Date: Jan 2011

Publication Type(s): Journal: Conference Abstract

Abstract:OBJECTIVE: As part of a patient safety initiative program, in 2008 induction of labor with pitocin was restricted to only 2 regimens (lowdose vs high-dose). Since it is controversial whether either regimen is safer (Cochrane), we have compared the effects of the 2 regimens on perinatal outcomes. STUDY DESIGN: Comparison of 2 cohorts of women undergoing induction of labor at term with live singleton gestations.The high-dose pitocin regimen involved a starting dose of 4 mU/min followed by increases of 4 mU/min every 15 min up to a maximum dose of 36 mU/min. The low-dose regimen involved a starting dose of 2 mU/min followed by increases of 2 mU/min every 15 min up to a maximum dose of 36 mU/min. Outcome measures were cesarean section (CS) and a composite adverse neonatal outcome (5-min Apgar score < 7, umbilical artery pH < 7.10, or need for admission to NICU). RESULTS: A total of 236 inductions of labor occurred during the study period. Maternal age (29+/- 6 vs 32+/- 6 years, P=0.01) was different between the low dose vs high dose pitocin regimen groups, whereas rate of nulliparity, gestational age and indications for induction were similar. Cesarean section rate (26% vs 17%, P=0.27) and adverse fetal outcome (4.5% vs 0%, P=0.28) were similar in the low dose vs high dose regimen groups. The lack of a significant association between pitocin regimen and rates of CS (P=0.13) or adverse perinatal outcome (P=0.71) persisted after controlling for confounders. Our study had adequate statistical power (alpha =0.05, beta =0.20) to detect a difference of 16% in CS and 8.2% in adverse neonatal outcome in the two groups. Terbutaline for tachysystole with fetal heart rate changes was required in 6 cases, all in the low dose pitocin regimen group. CONCLUSIONS: Use of a high dose or a low dose regimen of pitocin administration for induction of labor at term is associated with similar rates of cesarean section or adverse neonatal outcome.

Database: EMBASE

6. High-dose vs low-dose oxytocin for labor augmentation: a systematic review.

Author(s): Wei, Shu-Qin; Luo, Zhong-Cheng; Qi, Hui-Ping; Xu, Hairong; Fraser, William D

Source: American journal of obstetrics and gynecology; Oct 2010; vol. 203 (no. 4); p. 296-304

Publication Date: Oct 2010

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

Abstract: The objective of this systematic review was to estimate the efficacy and safety of high-dose vs low-dose oxytocin for labor augmentation on the risk of cesarean section and on indicators of maternal and neonatal morbidity. We searched PubMed, MEDLINE, EMBASE, and the Cochrane Library for randomized clinical trials published until January 2010. Ten randomized clinical trials, including 5423 women, met the inclusion criteria. High-dose oxytocin was associated with a moderate decrease in the risk of cesarean section (relative risk [RR], 0.85; 95% confidence interval [CI], 0.75-0.97), a small increase in spontaneous vaginal delivery (RR, 1.07; 95% CI, 1.02-1.12), and a decrease in labor duration (mean difference: -1.54 hours, 95% CI, -2.44 to -0.64). While hyperstimulation was increased with high-dose oxytocin (RR, 1.91; 95% CI, 1.49-2.45), there was no evidence of an increase in maternal or neonatal morbidity. We conclude that high-dose oxytocin for labor augmentation is associated with a decrease in cesarean section and shortened labor.

Database: Medline

7. Oxytocin: new perspectives on an old drug

Author(s): Clark S.L.; Simpson K.R.; Knox G.E.; Garite T.J.

Source: American Journal of Obstetrics and Gynecology; Jan 2009; vol. 200 (no. 1); p. 35

Publication Date: Jan 2009

Publication Type(s): Journal: Article

Abstract: Oxytocin is the drug most commonly associated with preventable adverse perinatal outcomes and was recently added by the Institute for Safe Medication Practices to a small list of medications "bearing a heightened risk of harm," which may "require special safeguards to reduce the risk of error." Current recommendations for the administration of this drug are vague with respect to indications, timing, dosage, and monitoring of maternal and fetal effects. A review of available clinical and pharmacologic data suggests that specific, evidence-based guidelines for the intrapartum administration of oxytocin may be derived from available data. If implemented, such practices may reduce the likelihood of patient harm. These suggested guidelines focus on limited elective administration of oxytocin, consideration of strategies that have been shown to decrease the need for indicated oxytocin use, reliance on low-dose oxytocin regimens, adherence to specific semiquantitative definitions of adequate and inadequate labor, and an acceptance that once adequate uterine activity has been achieved, more time rather than more oxytocin is generally preferable. The use of conservative, specific protocols for monitoring the effects of oxytocin on mother and fetus is likely not only to improve outcomes but also reduce conflict between members of the obstetric team. Implementation of these guidelines would seem appropriate in a culture increasingly focused on patient safety.

Database: EMBASE

8. Best practices in perinatal care. Evidence-based management of oxytocin induction and augmentation of labor

Author(s): Mahlmeister L.R.

Source: Journal of Perinatal and Neonatal Nursing; 2008; vol. 22 (no. 4); p. 259-263

Publication Date: 2008

Publication Type(s): Journal: Review

Available in full text at Journal of Perinatal and Neonatal Nursing - from Ovid

Database: EMBASE

9. Improving patient safety and uniformity of care by a standardized regimen for the use of oxytocin

Author(s): Hayes E.J.; Weinstein L.

Source: American Journal of Obstetrics and Gynecology; Jun 2008; vol. 198 (no. 6); p. 622

Publication Date: Jun 2008

Publication Type(s): Journal: Article

Abstract: Oxytocin is 1 of the most commonly used drugs in labor and has been associated with adverse maternal and fetal outcomes. In an attempt to improve patient safety, we constructed a standardized protocol for labor induction with oxytocin. We reviewed the numerous publications regarding oxytocin use for either induction or augmentation of labor in order to determine if there was a protocol available that would maximize success of delivery and minimize the adverse maternal and fetal effects of the drug. Using the literature review and the specific pharmacokinetics of oxytocin, we developed a standardized approach for the dilution and administration of oxytocin in order to improve patient safety, develop uniformity of the drug use, maximize its benefits, and minimize its side effects. We suggest that a standardized approach to oxytocin use be adopted that uses an oxytocin dilution of 10 mU/mL, initial dose of 2 mU/min (12 mL/hr), incremental increase of 2 mU (12 mL) every 45 minutes until adequate labor with the maximum dose being 16 mU/min (96 mL/hr).

Database: EMBASE

10. A protocol for use of oxytocin

Author(s): Freeman R.K.; Nageotte M.

Source: American Journal of Obstetrics and Gynecology; Nov 2007; vol. 197 (no. 5); p. 445-446

Publication Date: Nov 2007

Publication Type(s): Journal: Editorial

Database: EMBASE

11. Water intoxication - A dangerous condition in labor and delivery rooms

Author(s): Ophir E.; Solt I.; Odeh M.; Bornstein J.

Source: Obstetrical and Gynecological Survey; Nov 2007; vol. 62 (no. 11); p. 731-738

Publication Date: Nov 2007

Publication Type(s): Journal: Review

Available in full text at Obstetrical and Gynecological Survey - from Ovid

Abstract: Water intoxication, a form of acute hyponatremia, has been described in various clinical situations. Although hyponatremia is a common metabolic disorder in hospitalized patients, it is generally not well known as a hazard in the labor and delivery room. However, several factors predispose laboring women to develop hyponatremia. Moreover, because the fetus acquires water from the maternal circulation via the placenta, and there is a close correlation between maternal and cord blood serum sodium levels, the newborn infant of a hyponatremic mother is also at considerable risk of developing water intoxication. We review the epidemiology, pathophysiology, clinical features, and treatment of this hazardous disorder. We emphasize the need for awareness of this condition, and call attention to the risk of fluid overload during labor. TARGET AUDIENCE: Obstetricians & Gynecologists, Family Physicians LEARNING OBJECTIVES: After completion of this article, the reader should be able to recall that clinical hyponatremia can occur during labor, which

may be due to the treatments received during labor or to secondary causes, and to state that the fetus may also be adversely affected and the mother must be diagnosed and treated to prevent serious consequences. © 2007 Lippincott Williams & Wilkins, Inc.

Database: EMBASE

12. Low dose oxytocin protocol for induction of labor in the presence of an unfavorable cervix

Author(s): Jarjees Y.T.

Source: Middle East Journal of Emergency Medicine; Sep 2007; vol. 7 (no. 2); p. 76-80

Publication Date: Sep 2007

Publication Type(s): Journal: Article

Abstract: Objectives: A) To evaluate the effectiveness and safety of the protocol of low dose oxytocin for induction and active management of labor at term in the presence of an unfavorable cervix. B) To analyze the possible predictors of unsuccessful induction. C) To discover the induction - delivery interval. Design: Case series study. Setting: Al-Batool Maternity Teaching Hospital with a total of 13,000 deliveries per year. Participants: Pregnancies that underwent labor induction at > 37 weeks of gestation with unfavorable cervix (Bishop score < 5). Intervention(s): The patients were assigned to receive 2 mlU/min. oxytocin in 500mls of intravenous fluid on day one. When contractions do not start with this dose, on the second day the patient receives 2 and 4 mlU/min. oxytocin in 500mls saline, consecutively. If there is still no response, on the third day she is given 4, 8 and 16 mlU/min. in 500mls of saline,consecutively, maintaining these doses until the contractions start. Main outcome measures: The primary outcomes measures were: successful induction rate, cesarean delivery rate, total oxytocin dose, induction to delivery interval, excess uterine activity, and fetal condition at birth. Results: Primary cesarean delivery rate was (24.3%). Increasing Bishop Scores decreased the risk of failed induction. Mean oxytocin dose was 6.4 lU/patient. Delivery occurred during the first 24 hours in (48.6%) of cases. Conclusions: The protocol of repeated, daily, low dose oxytocin infusions, with gradual increases, was found to be in safe in this study and may reduce the high rate of operative delivery associated with induction of labor.

Database: EMBASE

13. Oxytocin for induction of labor

Author(s): Smith J.G.; Merrill D.C.

Source: Clinical Obstetrics and Gynecology; Sep 2006; vol. 49 (no. 3); p. 594-608

Publication Date: Sep 2006

Publication Type(s): Journal: Review

Available in full text at Clinical Obstetrics and Gynecology - from Ovid

Abstract: Oxytocin is the most common pharmacologic agent used for the induction and augmentation of labor. Oxytocin protocols can be divided into high-dose and low-dose protocols depending on the initial dose and the amount and rate of sequential increase in dose. Despite the frequency with which oxytocin in used in clinical practice, there is little consensus regarding which protocol is most appropriate. The purpose of this chapter is to review the most current data concerning recommendations for the use of oxytocin in the induction of labor, including cases of intrauterine fetal demise and vaginal birth after cesarean. © 2006, Lippincott Williams & Wilkins.

Database: EMBASE

14. Current practice in oxytocin dilution and fluid administration for induction of labor

Author(s): Ruchala P.L.; Metheny N.; Essenpreis H.; Borcherding K.

Source: Journal of obstetric, gynecologic, and neonatal nursing : JOGNN / NAACOG; 2002; vol. 31 (no. 5); p. 545-550

Publication Date: 2002

Publication Type(s): Journal: Article

Available in full text at Journal of Obstetric, Gynecologic, and Neonatal Nursing - from John Wiley and Sons

Abstract: OBJECTIVE: To determine the types of intravenous fluids used to dilute oxytocin for labor induction in a national sample of obstetric units, as well as the extent to which these fluids reflect current published guidelines. DESIGN: A descriptive design. SETTING: Questionnaires were mailed to nurse managers at 700 obstetric units chosen via systematic random sampling from eligible hospitals listed in The AHA Guide (1998). PARTICIPANTS: Two hundred fifty-six usable questionnaires were included in data analysis. MAIN OUTCOME MEASURES: The Labor Induction Protocol Survey, consisting of eight questions relating to number of births per year, percentage of women whose labor is induced or augmented, methods used for induction of labor, intravenous fluids used to dilute oxytocin for induction of labor, the level of perinatal care of the unit, and the protocols units used to guide their practice in the use of oxytocin, was developed for this study. RESULTS: Approximately 98% of the responding sites follow the current recommendations for oxytocin dilution and mainline fluid delivery. However, 5 or 2% of the sites reported the use of 5% dextrose in water for both oxytocin dilution and the mainline intravenous solution. CONCLUSIONS: Although only 5 (2%) of the responding facilities indicated the use of 5% dextrose in water for both oxytocin dilution and the mainline intravenous solution, this may be clinically significant because of the serious nature of hyponatremia and the ease of its prevention. Nurses should be aware of the extent to which protocols for the infusion of oxytocin vary, despite what is documented as best practice and the potential consequences for their patients of implementing those protocols. Nurses who advocate for and participate in writing protocols that reflect the best-recommended practice for their patients will assist in ensuring that what is documented as best practice is actually implemented.

Database: EMBASE

15. Oxytocin for labor induction.

Author(s): Stubbs, T M

Source: Clinical obstetrics and gynecology; Sep 2000; vol. 43 (no. 3); p. 489-494

Publication Date: Sep 2000

Publication Type(s): Journal Article Review

Available in full text at Clinical Obstetrics and Gynecology - from Ovid

Abstract: Induction of labor has increased from 9% to 18% of all U.S. deliveries in recent years. Several useful oxytocin induction protocols are available, both from the ACOG Practice Bulletin #10 and institutional sources. Higher-dose protocols tend to result in fewer cesarean deliveries for dystocia but more "fetal distress." There is no consensus as to which protocol is best, and the clinician is advised to understand the trade-offs involved and how those trade-offs could relate to the clinician's local situation. Given the availability now of prostaglandin agents for induction with an unfavorable cervix, the advantage of less hyperstimulation in low-dose oxytocin protocols may become increasingly important. The most important risks include hyperstimulation (frequent but usually brief and well-tolerated), failed induction (occasional and important), and uterine rupture in

some studies (rare but dangerous). Pain was not a sensitive indicator of uterine rupture in a large 1989 study. Fetal heart rate changes were much more likely to herald uterine rupture in that study. Oxytocin's greatest weakness is that some patients will not respond well to it, especially with marked cervical unfavorability. However, given an individual patient whose uterus will respond adequately to this drug, oxytocin has the advantage of short half-life and the option for prompt cessation if desired. Intrauterine pressure catheters with oxytocin usage are usually well-worth their minor risks. Current ACOG literature lists induction of labor in the setting of one or more previous low-transverse cesarean deliveries as necessitating "special attention" and "close patient monitoring." The well-informed clinician will be familiar with the issues involved.

Database: Medline

16. Determination of oxytocin in a dilute IV solution by LC-MS(n).

Author(s): Karbiwnyk, Christine M; Faul, Kent C; Turnipseed, Sherri B; Andersen, Wendy C; Miller, Keith E

Source: Journal of pharmaceutical and biomedical analysis; Nov 2008; vol. 48 (no. 3); p. 672-677

Publication Date: Nov 2008

Publication Type(s): Journal Article

Abstract: The most common drug prescribed to induce labor in the United States is oxytocin, a peptide hormone composed of nine amino acids. Oxytocin is often reconstituted in intravenous (IV) saline solutions at less than 0.05 units ml(-1) (125 ng ml(-1)) to be delivered at 1-4 drops per minute. Existing LC-UV methods for oxytocin do not have sufficient detection limits to quantitate and/or confirm oxytocin in IV solutions without sample concentration. A determinative and confirmatory method for oxytocin was developed using an LC-MS(n) ion trap instrument with an electrospray ionization (ESI) interface in positive ion mode. Separation was achieved on a C-18 column using an isocratic elution of water with 50% acetonitrile (v/v) and water with 0.05% formic acid (v/v) at a flow rate of 250 microl min(-1). Data was acquired from the selected ion monitoring (SIM) of the precursor ion (m/z 1007.3) and MS(2) scans from the collision induced dissociation of m/z 1007.3 at 30% collision energy. In this method, MS(2) full scans were utilized to obtain three structurally significant ions for the unambiguous identification of oxytocin. Calibration standards, prepared in de-ionized water from 0.006 to 0.046 units ml(-1), were linear with an R(2) value of 0.9983. The methods LOD and LOQ were 0.00084 and 0.0029 units ml(-1) (2 and 7 ng ml(-1)), respectively. This LC-MS(n) method was used to determine the amount of oxytocin in a 0.04 units ml(-1) clinical sample that was prepared in 0.9% sodium chloride IV solution.

Database: Medline

17. Iatrogenic hyponatraemia of the newborn due to maternal fluid overload: A prospective study

Author(s): Tarnow-Mordi W.O.; Shaw J.C.L.; Liu D.

Source: British Medical Journal; 1981; vol. 283 (no. 6292); p. 639-642

Publication Date: 1981

Publication Type(s): Journal: Article

Abstract: Over five weeks 136 out of 246 deliveries were studied. Maternal plasma sodium concentrations were normal at admission. At delivery no significant difference was found between maternal and infant cord plasma sodium concentrations. Twenty-four of the 41 mothers who had received only oral fluids during labour had infants whose cord plasma sodium concentrations were normal. Of the 95 mothers who had been given intravenous fluids, however, only 14 had infants with normal plasma sodium concentrations, 31 had a concentration of 130 mmol (mEq)/1 or less and nine of these had a concentration of 125 mmol/l or less. There was a highly significant inverse relation between cord plasma sodium concentration and rate of fluid administration, suggesting that hyponatraemia was due to intravenous treatment with predominantly sodium-free solutions. Endogenous antidiuretic activity probably increases during labour, and synthetic oxytocin in large doses has been shown to have an antidiuretic effect. The dose used in this study did not appear to have such an effect. Glucose solutions are often used as a vehicle for oxytocin; 83% of all fluid intake in this study was 5% or 10% glucose in water. Fluid balance in labour should be supervised closely, and oxytocin should be given in a more concentrated solution.

Database: EMBASE

Strategy 131647

#	Database	Search term	Results
1	EMBASE	exp OXYTOCIN/	30798
2	EMBASE	(syntocinon OR oxytocin).ti,ab	23186
3	EMBASE	(1 OR 2)	34710
4	EMBASE	(dilut*).ti,ab	138538
5	EMBASE	(3 AND 4)	197
6	EMBASE	exp HYPERVOLEMIA/	4757
7	EMBASE	(5 AND 6)	1
8	EMBASE	(3 AND 6)	17
9	EMBASE	exp "HARTMANN SOLUTION"/	503
10	EMBASE	(3 AND 9)	22
11	EMBASE	(dilut*).ti	12456
12	EMBASE	(3 AND 11)	10
13	EMBASE	exp "LABOR INDUCTION"/	13274
14	EMBASE	(5 AND 13)	26
15	EMBASE	exp "SODIUM CHLORIDE"/	190180
16	EMBASE	(3 AND 15)	1120
17	EMBASE	(4 AND 16)	26
18	EMBASE	(3 AND 13)	4258
19	EMBASE	(6 AND 18)	1
20	Medline	exp OXYTOCIN/	17879

21	Medline	(syntocinon OR oxytocin).ti,ab	19517
22	Medline	(20 OR 21)	24321
23	Medline	(dilut*).ti,ab	111433
24	Medline	(22 AND 23)	132
25	Medline	exp "LABOR, INDUCED"/	8515
26	Medline	((labour OR labor) ADJ2 induc*).ti,ab	7582
27	Medline	(25 OR 26)	11575
28	Medline	(24 AND 27)	21
29	Medline	exp "SODIUM CHLORIDE"/	59657
30	Medline	(22 AND 27 AND 29)	38
31	EMBASE	("fluid overload").ti,ab	3168
32	EMBASE	(HYPERVOLEMIA).ti,ab	1350
33	EMBASE	exp HYPERVOLEMIA/	4757
34	EMBASE	(31 OR 32 OR 33)	7160
35	Medline	("fluid overload").ti,ab	1891
36	Medline	(HYPERVOLEMIA).ti,ab	1012
37	Medline	(35 OR 36)	2872
38	Medline	(22 AND 27 AND 37)	2
39	Medline	exp HYPONATREMIA/	8157
40	Medline	(22 AND 39)	62
41	Medline	(27 AND 40)	11
42	CINAHL	(syntocinon OR oxytocin).ti,ab	884

43	CINAHL	exp OXYTOCIN/	1072
44	CINAHL	(42 OR 43)	1455
45	CINAHL	(dilut*).ti,ab	2623
46	CINAHL	(44 AND 45)	8
47	CINAHL	exp "LABOR, INDUCED"/	1933
48	CINAHL	exp OXYTOCICS/ad	550
49	CINAHL	(47 AND 48)	228
50	CINAHL	("fluid overload").ti,ab	211
51	CINAHL	(HYPERVOLEMIA).ti,ab	63
52	CINAHL	exp HYPONATREMIA/	1261
53	CINAHL	(50 OR 51 OR 52)	1517
54	CINAHL	(49 AND 53)	0
55	CINAHL	exp "NORMAL SALINE"/	1090
56	CINAHL	(49 AND 55)	1
57	CINAHL	(44 AND 55)	5
58	EMBASE	exp "OXYTOCIC AGENT"/	1603
59	EMBASE	(6 AND 13 AND 58)	0
60	EMBASE	(34 AND 58)	1
61	EMBASE	(9 AND 58)	0
62	EMBASE	(15 AND 58)	22
63	EMBASE	exp "CLINICAL PROTOCOL"/	81961
64	EMBASE	(3 AND 13 AND 63)	68

65	EMBASE	(protocol*).ti	50158
66	EMBASE	(3 AND 65)	95
67	Medline	exp "CLINICAL PROTOCOLS"/	142233
68	Medline	(22 AND 67)	44
69	EMBASE	exp "ISOTONIC SOLUTION"/	4598
70	EMBASE	(3 AND 69)	26
71	EMBASE	exp HYPONATREMIA/	24891
72	EMBASE	(3 AND 71)	205
73	EMBASE	(13 AND 72)	22
74	EMBASE	(diluent*).ti,ab	6262
75	EMBASE	(3 AND 74)	8
76	Medline	(diluent*).ti,ab	4462
77	Medline	(22 AND 76)	7
78	EMBASE	(3 AND 34)	29
79	Medline	(22 AND 37)	9
80	CINAHL	(44 AND 53)	4