JULY 31, 1978
TIME
$1.00
The Test-Tube Baby
Birth Watch in Britain
JIMMY CARTER
The Leadership Question
NASZ BOCIAN
STRONA GŁÓWNA
STOWARZYSZENIE
ARTYKUŁY BOCIANA
LINIA POMOCY PACJENT DLA PACJENTA
Niepłodność boli.
Dlatego uruchomiliśmy linię pomocy w której pacjenci
podzielą się swoim doświadczeniem.
POLSKA MANIA ANTYPOLSKA / STASI - OPERACJA KAROL WOJTYŁ
WPROST
URODZILI SIĘ PIERWSI SUPER POLACY
Jak się naprawia dzieciom geny
s. 70
Grzech pierworodny IVF
HUMAN EGG LOTTERY AS IVF PROMOTION
Mary Meets Dolly
HUMAN EGG LOTTERY AS IVF PROMOTION
The Guardian 200

ZDROWIE DZIECI PO LECZENIU NIEPŁODNOŚCI

Rafał Kurzawa
rafal.kurzawa@gmail.com

Pomorski Uniwersytet Medyczny
Sekcja Płodności i Niepłodności PTG
Ośrodek Studiów nad Płodnością Człowieka

Witaj gościu z Google | Możliwe, że zainteresują Cię artykuły na temat: in vitro | episkopat

Episkopat znów o in vitro: "Powoduje niepożądane skutki genetyczne"

Jacek Kowalski, PAP

25.06.2013 , aktualizacja: 25.06.2013 18:18

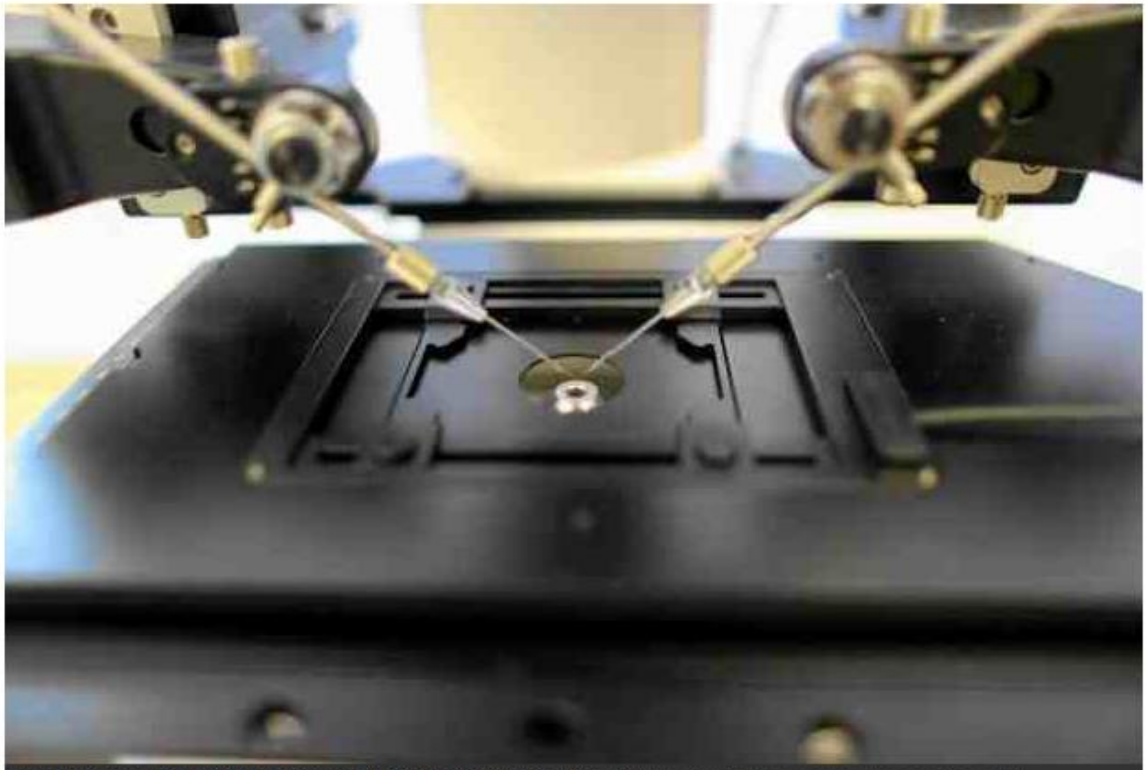
A A A

28 Lubię to!

10 Podziel się

87 Skomentuj

Wyślij e-mailem



Robot do in vitro w klinice leczenia niepłodności w Katowicach (Fot. Dawid Chalimoniuk / Agencja Gazeta)

- Badania kliniczne potwierdzają, że zapłodnienie in vitro może prowadzić do niepożądanych skutków genetycznych i zdrowotnych - ogłosił we wtorek zespół ds. bioetycznych Konferencji Episkopatu Polski. Zespół prezentuje też na swojej stronie listę badań dowodzących tej tezy. I pomija te, które jej zaprzeczają

NAJCZĘŚCIEJ CZYTANE

WSZYSTKO PŁATNE

1. Spadł na nią samobójca, ma złamany kręgosłup. Postawmy ją na
2. Zobacz, co świat robi z dawnymi fabrykami
3. Drugi zatrzymany w sprawie fałszywych alarmów bombowych w
4. Awantura o prof. Hartmana. Winny system czy lekarze?
5. Putin: Snowden jest na lotnisku w Moskwie

reklama

POLECAMY

NAUKA

W najbardziej zagadkowej księdze jest ukryty przekaz

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Reproductive Technologies and the Risk of Birth Defects

Michael J. Davies, M.P.H., Ph.D., Vivienne M. Moore, M.P.H., Ph.D., Kristyn J. Willson, B.Sc., Phillipa Van Essen, M.P.H., Kevin Priest, B.Sc., Heather Scott, B.Mgmt., Eric A. Haan, M.B., B.S., and Annabelle Chan, M.B., B.S, D.P.H.

ABSTRACT

BACKGROUND

The extent to which birth defects after infertility treatment may be explained by underlying parental factors is uncertain.

METHODS

We linked a census of treatment with assisted reproductive technology in South Australia to a registry of births and terminations with a gestation period of at least 20 weeks or a birth weight of at least 400 g and registries of birth defects (including cerebral palsy and terminations for defects at any gestational period). We compared risks of birth defects (diagnosed before a child's fifth birthday) among pregnancies in women who received treatment with assisted reproductive technology, spontaneous pregnancies (i.e., without assisted conception) in women who had a previous birth with assisted conception, pregnancies in women with a record of infertility but no treatment with assisted reproductive technology, and pregnancies in women with no record of infertility.

RESULTS

Of the 308,974 births, 6163 resulted from assisted conception. The unadjusted odds ratio for any birth defect in pregnancies involving assisted conception (513 defects, 8.3%) as compared with pregnancies not involving assisted conception (17,546 defects, 5.8%) was 1.47 (95% confidence interval [CI], 1.33 to 1.62); the multivariate-adjusted odds ratio was 1.28 (95% CI, 1.16 to 1.41). The corresponding odds ratios with in vitro fertilization (IVF) (165 birth defects, 7.2%) were 1.26 (95% CI, 1.07 to 1.48) and 1.07 (95% CI, 0.90 to 1.26), and the odds ratios with intracytoplasmic sperm injection (ICSI) (139 defects, 9.9%) were 1.77 (95% CI, 1.47 to 2.12) and 1.57 (95% CI, 1.30 to 1.90). A history of infertility, either with or without assisted conception, was also significantly associated with birth defects.

CONCLUSIONS

The increased risk of birth defects associated with IVF was no longer significant after adjustment for parental factors. The risk of birth defects associated with ICSI remained increased after multivariate adjustment, although the possibility of residual confounding cannot be excluded. (Funded by the National Health and Medical Research Council and the Australian Research Council.)

From the Robinson Institute (M.J.D., V.M.M., K.J.W.), Research Centre in the Early Origins of Health and Disease (M.J.D., V.M.M., K.J.W.), Discipline of Public Health (V.M.M., K.J.W.), and Discipline of Paediatrics and Reproductive Health (M.J.D., E.A.H.), University of Adelaide, the South Australian Birth Defects Register, Women's and Children's Hospital (P.V.E., H.S., E.A.H., A.C.), the Epidemiology Branch, South Australian Department of Health (K.P., A.C.), and the South Australian Clinical Genetics Service, SA Pathology (E.A.H.) — all in Adelaide, SA, Australia. Address reprint requests to Dr. Davies at the Robinson Institute, Medical School South, Frome Rd., Adelaide, SA 5005, Australia, or at michael.davies@adelaide.edu.au.

This article (10.1056/NEJMoa1008095) was published on May 5, 2012, at NEJM.org.

N Engl J Med 2012;366:1803-13.
Copyright © 2012 Massachusetts Medical Society.

The New England Journal of Medicine
Downloaded from nejm.org on November 21, 2012. For personal use only. No other uses without permission.
Copyright © 2012 Massachusetts Medical Society. All rights reserved.

Human Reproduction Update Advance Access published February 28, 2013
Human Reproduction Update, Vol.0, No.0 pp. 1–24, 2013
doi:10.1093/humupd/dmt006

human reproduction update

Assisted reproductive technology and birth defects: a systematic review and meta-analysis

Michèle Hansen[1,*], Jennifer J. Kurinczuk[2], Elizabeth Milne[1], Nicholas de Klerk[3], and Carol Bower[1,4]

[1]Division of Population Sciences, Telethon Institute for Child Health Research and the Centre for Child Health Research, University of Western Australia, PO Box 855, Perth, Western Australia 6872, Australia [2]National Perinatal Epidemiology Unit, University of Oxford, Oxford, UK [3]Department of Biostatistics and Bioinformatics, Telethon Institute for Child Health Research and the Centre for Child Health Research, University of Western Australia, Perth, Western Australia, Australia [4]Western Australian Register of Developmental Anomalies, King Edward Memorial Hospital, Subiaco, Western Australia, Australia

Correspondence address. Tel: +61-8-9489-7771; Fax: +61-8-9489-7700; E-mail: michele@ichr.uwa.edu.au

Submitted on October 10, 2012; resubmitted on December 20, 2012; accepted on January 22, 2013

TABLE OF CONTENTS

- Introduction
- Methods
  - Search strategy and inclusion criteria
  - Exclusions
  - Quality assessment
  - Statistical analysis
  - Sensitivity analyses and publication bias
- Results
  - Characteristics of included studies
  - Primary outcomes
  - Sensitivity analyses and publication bias
  - Secondary outcomes: sub-group analyses
- Discussion

BACKGROUND: It has been 10 years since we carried out a systematic search of the literature on birth defect risk in infants born following assisted reproductive technology (ART) compared with non-ART infants. Because of changes to ART practice since that review and the publication of more studies the objective of this review was to include these more recent studies to estimate birth defect risk after ART and to examine birth defect risk separately in ART singletons and multiples.

METHODS: We searched Medline, Embase and Current Contents databases (1978–2012). We used the same data extraction sheet and questionnaire we had used previously with the addition of a quality score to the questionnaire. Pooled relative risk (RR) estimates were calculated using a random effects model. All data were analysed using Comprehensive Meta-Analysis V2.

RESULTS: There were 45 cohort studies included in this review. ART infants ($n = 92\,671$) had a higher risk of birth defects [RR 1.32, 95% confidence interval (CI) 1.24–1.42] compared with naturally conceived infants ($n = 3\,870\,760$). The risk further increased when data were restricted to major birth defects (RR 1.42, 95% CI 1.29–1.56) or singletons only (RR 1.36, 95% CI 1.30–1.43). The results for ART multiples were less clear. When all data for multiples were pooled the RR estimate was 1.11 (95% CI 0.98–1.26) but this increased to 1.26 (0.99–1.60) when the analysis was restricted to studies of ART twins where some adjustment was made for differences in zygosity distribution between ART and non-ART multiples.

© The Author 2013. Published by Oxford University Press on behalf of the European Society of Human Reproduction and Embryology. All rights reserved.
For Permissions, please email: journals.permissions@oup.com

Downloaded from http://humupd.oxfordjournals.org/ at Uniwersytet Medyczny w Bialymstoku on March 30, 2013

IVF ma 35 lat

- Żyje ponad 5 000 000 dzieci po in vitro
- Liczba porodów rocznie: co najmniej 250 000
- Proporcja porodów po ART w stosunku do wszystkich porodów: 0,8% - 4,1% [0,3-9,0%].

„GRZECH PIERWORODNY” IN VITRO

- In vitro jest działaniem empirycznym.
- In vitro zostało zastosowane zanim przeprowadzono prospektywne badania kliniczne na człowieku.
- Z uwagi na naturę problemu takich badań przeprowadzić nie można.

Wątpliwości i problemy

- Powikłania perinatologiczne?
- Powikłania neonatologiczne?
- Śmiertelność okołoporodowa?
- Wady wrodzone?
- Nowotwory?
- Imprinting?

Najstarsze dziecko po

IVF

Ma **35** lat

ICSI

Ma **23** lata

CIĄŻA I PORÓD

w naturze

- Wiek rodzącej

28 lat

- Ryzyko ciąży wielopłodowej

1 %

- Czas do zajścia w ciążę

9 miesięcy

po leczeniu niepłodności niezależnie od metody

- Wiek rodzącej

33 lata

- Ryzyko ciąży wielopłodowej

20 %

- Czas do zajścia w ciążę

36 miesięcy

CIĄŻA I PORÓD

w naturze

- Ryzyko wad wrodzonych

3%

po leczeniu niepłodności niezależnie od metody

- Ryzyko wad wrodzonych

4,5%

DLATEGO!

Dzieci po leczeniu niepłodności są

ZDROWE

Wszelkie wnioski na temat wyników i bezpieczeństwa leczenia powinny być formułowane na podstawie danych z rejestrów narodowych lub badań z prawidłowo dobraną grupą kontrolną.

Human Reproduction, Vol.24, No.2 pp. 360–366, 2009
Advanced Access publication on November 14, 2008 doi:10.1093/humrep/den387

human reproduction ORIGINAL ARTICLE *Infertility*

Assisted reproductive technology and major structural birth defects in the United States†

USA

J. Reefhuis[1,3], M.A. Honein[1], L.A. Schieve[1], A. Correa[1], C.A. Hobbs[2] and S.A. Rasmussen[1], and the National Birth Defects Prevention Study

[1]National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, 1600 Clifton Road NE, MS E-86, Atlanta, GA 30033, USA [2]University of Arkansas for Medical Sciences, Little Rock, AR 72202, USA

[3]Correspondence address. E-mail: nzr5@cdc.gov

Effects of technology or maternal factors on perinatal outcome after assisted fertilisation: a population-based cohort study

Liv Bente Romundstad, [illegible] Arne Sunde, Vid[illegible], Rolv Skjærven, David Gunnell, Lars J Vatten

Lancet 2008; 372:7[illegible]

NORWEGIA

FINLANDIA

Human Reproduction, Vol.26, No.2 pp. 451–457, 2011
Advanced Access publication on November 26, 2010 doi:10.1093/humrep/deq313

human reproduction ORIGINAL ARTICLE *Reproductive epidemiology*

Use of clomiphene citrate and birth defects, National Birth Defects Prevention Study, 1997–2005

J. [illegible], M.A. Honein, L.A. Schieve, S.A. Rasmussen and the National Birth Defects Prevention Study

[illegible] Center for Disease Control and Prevention, [illegible] Center on Birth Defects and Developmental Disabilities, 1600 Clifton Road NE, MS E-86, Atlanta, GA 30[illegible]

*Correspondence address. [illegible]@cdc.gov

Submitted on [illegible] Resubmitted on September 15, [illegible] Accepted on October 6, 2010

Prolonged time to pregnancy is associated with a greater risk of adverse outcomes

Births with known time to pregnancy (TTP) during the period [illegible] (n = 17,114) were analyzed to investigate associations between TTP and pregnancy outcomes in couples that conceived spontaneously. The adjusted odds ratio (95% confidence interval) for poor neonatal [illegible] including low Apgar score, low umbilical vein pH, and [illegible] for neonatal intensive care, was [illegible] (1.09–[illegible]) in women who had a TTP of 25–36 months and 1.60 ([illegible]) in women who had a TTP of [illegible] months compared with women with a TTP of 0–6 months. (Fertil Steril® 2010;94:1148–51. ©2010 [illegible] Society for Reproductive Medicine.)

Fertility and Sterility® Vol. [illegible], No. [illegible], August 2010
Copyright ©2010 American Society for Reproductive Medicine, Published by Elsevier Inc.

Raatikainen et al.

AUSTRALIA

DANIA

Perinatal outcome of singleton siblings born after assisted reproductive technology and spontaneous conception: Danish national sibling cohort study

Anna-Karina Aaris Henningsen, M.D.,[a] Anja Pinborg, M.D., Ø[illegible], Øjvind Lidegaard, M.D.Sc.,[b] Christina Vestergaard, M.P.H.,[b] Julie Lyng Forman, M.[illegible], Ph.D.,[c] and Anders Nyboe Andersen, M.D.Sc.[a]

[a] Fertility Clinic, Rigshospitalet, University of Copenhagen; [b] Department of Gynecology, Rigshospitalet, University of Copenhagen; and [c] Department of Biostatistics, University of Copenhagen, Copenhagen, Denmark

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Reproductive Technologies and the Risk of Birth Defects

Michael J. Davies, M.P.H., Ph.D., Vivienne M. Moore, M.P.H., Ph.D., Kristyn J. Willson, B.Sc., Phillipa Van Essen, M.P.H., Kevin Priest, B.Sc., Heather Scott, B.Mgmt., Eric A. Haan, M.B., B.S., and Annabelle Chan, M.B., B.S, D.P.H.

5

500 000

5 000 000

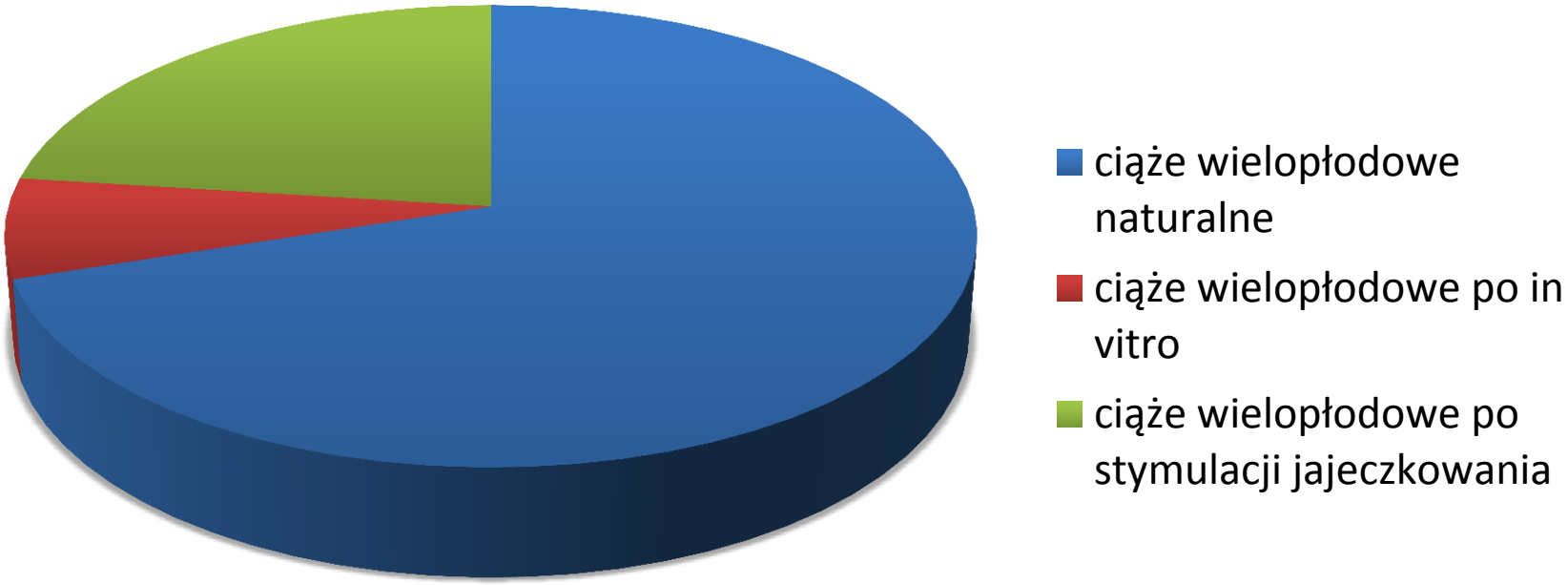
Rejestry USA i UE

1

CIĄŻA WIELOPŁODOWA

- 7,4 krotny wzrost ryzyka porodu przed 32 tygodniem ciąży
- Wzrost ryzyka niskiej masy urodzeniowej <1000g
- 2 krotny wzrost ryzyka umieralności okołoporodowej

CIĄŻE WIELOPŁODOWE W USA (2005)



Ciąż wielopłodowych po indukcji i stymulacji jajeczkowania jest 4-5 razy wiecej niż po in vitro!

CIĄŻE WIELOPŁODOWE PO IN VITRO

EIM 2008

KRAJ	CIĄŻE POJEDYNCZE	CIĄŻE BLIŹNIACZE	CIĄŻE TROJACZE
POLSKA	79,1%	20,4%	0,5%
BELGIA	88,3%	11,5%	0,2%
NIEMCY	78,0%	21,1%	0,9%
NORWEGIA	87,8%	12,0%	0,2%
SZWECJA	92,9%	7,0%	0,1%
UKRAINA	72,3%	27,2%	0,5%
WIELKA BRYTANIA	75,1%	24,5%	0,4%
ŁĄCZNIE (33 KRAJE)	**78,3%**	**20,7%**	**1,1%**

Ferraretti AP, Goossens V, de Mouzon J, Bhattacharya S, Castilla JA, Korsak V, Kupka M, Nygren KG, Nyboe Andersen A; European IVF-monitoring (EIM); Consortium for European Society of Human Reproduction and Embryology (ESHRE). Hum Reprod. **Assisted reproductive technology in Europe, 2008: results generated from European registers by ESHRE.** 2012 Sep;27(9):2571-84. Epub 2012 Jul 10.

Rejestry USA

2

IN VITRO A WADY WRODZONE

STANY ZJEDNOCZONE AMERYKI

Human Reproduction, Vol.24, No.2 pp. 360–366, 2009
Advanced Access publication on November 14, 2008 doi:10.1093/humrep/den387

human reproduction **ORIGINAL ARTICLE** ***Infertility***

Assisted reproductive technology and major structural birth defects in the United States†

J. Reefhuis[1,3], M.A. Honein[1], L.A. Schieve[1], A. Correa[1], C.A. Hobbs[2] and S.A. Rasmussen[1], and the National Birth Defects Prevention Study

[1]National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, 1600 Clifton Road N.E., MS E-86, Atlanta, GA 30033, USA [2]University of Arkansas for Medical Sciences, Little Rock, AR 72202, USA

[3]Correspondence address. E-mail: nzr5@cdc.gov

BACKGROUND: With >1% of US births occurring following use of assisted reproductive technology (ART), it is critical to examine whether ART is associated with birth defects.

METHODS: We analyzed data from the National Birth Defects Prevention Study, a population-based, multicenter, case–control study of birth defects. We included mothers of fetuses or live-born infants with a major birth defect (case infants) and mothers who had live-born infants who did not have a major birth defect (control infants), delivered during the period October 1997–December 2003. We compared mothers who reported ART use (IVF or ICSI) with those who had unassisted conceptions. Multiple logistic regression was used to adjust for the following confounders: maternal race/ethnicity, maternal age, smoking and parity; we stratified by plurality.

RESULTS: ART was reported by 1.1% of all control mothers, and by 4.5% of control mothers 35 years or older. Among singleton births, ART was associated with septal heart defects (adjusted odds ratio [aOR] = 2.1, 95% confidence intervals [CI] 1.1–4.0), cleft lip with or without cleft palate (aOR = 2.4, 95% CI 1.2–5.1), esophageal atresia (aOR = 4.5, 95% CI 1.9–10.5) and anorectal atresia (aOR = 3.7, 95% CI 1.5–9.1). Among multiple births, ART was not significantly associated with any of the birth defects studied.

CONCLUSIONS: These findings suggest that some birth defects occur more often among infants conceived with ART. Although the mechanism is not clear, couples considering ART should be informed of all potential risks and benefits.

Key words: National Birth Defects Prevention Study / assisted reproductive technology / *in vitro* fertilization / birth defects / congenital anomalies

- Grupa badana: 9584 kobiety, które urodziły dzieci z wadami
  - 230 (2.4%) po zabiegu in vitro
- Grupa kontrolna: 4792 kobiety, które urodziły zdrowe dzieci
  - 51 (1.1%) po zabiegu in vitro

CYTRYNIAN KLOMIFENU A WADY WRODZONE

STANY ZJEDNOCZONE AMERYKI

Human Reproduction, Vol.26, No.2 pp. 451–457, 2011
Advanced Access publication on November 26, 2010 doi:10.1093/humrep/deq313

human reproduction **ORIGINAL ARTICLE** ***Reproductive epidemiology***

Use of clomiphene citrate and birth defects, National Birth Defects Prevention Study, 1997–2005

J. Reefhuis*, M.A. Honein, L.A. Schieve, S.A. Rasmussen, and the National Birth Defects Prevention Study

Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities, 1600 Clifton Road N.E. MS E-86, Atlanta, GA 30333, USA

*Correspondence address. E-mail: nzr5@cdc.gov

Submitted on June 14, 2010; resubmitted on September 15, 2010; accepted on October 6, 2010

BACKGROUND: Clomiphene citrate (CC) is the first line drug for subfertility treatment. Studies assessing the association between CC and birth defects have been inconclusive.

METHODS: We used data from the National Birth Defects Prevention Study, a population-based, multi-site case–control study of major birth defects. Women from 10 US regions with deliveries affected by at least one of >30 birth defects (cases) and mothers of live born infants without a major birth defect (controls) who delivered October 1997–December 2005 were interviewed. The exposure of interest was reported CC use in the period from 2 months before conception through the first month of pregnancy. Women who conceived using assisted reproductive technology were excluded. Thirty-six birth defect categories with at least three exposed cases were studied. Multiple logistic regression was used to control for potential confounders.

RESULTS: CC use was reported by 1.4% of control mothers (94/6500). Among 36 case-groups assessed, increased adjusted odds ratios (aOR) were found [all: aOR, 95% confidence interval (CI)] for anencephaly (2.3, 1.1–4.7), Dandy–Walker malformation (4.4, 1.7–11.6), septal heart defects (1.6, 1.1–2.2), muscular ventricular septal defect (4.9, 1.4–16.8), coarctation of aorta (1.8, 1.1–3.0), esophageal atresia (2.3, 1.3–4.0), cloacal exstrophy (5.4, 1.6–19.3), craniosynostosis (1.9, 1.2–3.0) and omphalocele (2.2, 1.1–4.5).

CONCLUSIONS: Several associations between CC use and birth defects were observed. However, because of the small number of cases, inconsistency of some findings with previous reports, and the fact that we cannot assess the CC effect separately from that of the subfertility, these associations should be interpreted cautiously.

Key words: clomiphene citrate / ovulation stimulation / birth defects / congenital malformations

- Grupa badana: 19059 kobiet, które urodziły dzieci z wadami
  - 440 (2.3%) po CC
- Grupa kontrolna: 6807 kobiet, które urodziły zdrowe dzieci
  - 94 (1.4%) po CC

Rejestry USA

I V F

- Grupa badana: 9584 kobiety, które urodziły dzieci z wadami
  - 230 2.4% po IVF
- Grupa kontrolna: 4792 kobiety, które urodziły zdrowe dzieci
  - 51 1.1% BYŁO PO IVF

CYTRYNIAN KLOMIFENU

- Grupa badana: 19059 kobiet, które urodziły dzieci z wadami
  - 440 2.3% po CC
- Grupa kontrolna: 6807 kobiety, które urodziły zdrowe dzieci
  - 94 1.4% BYŁO PO CC

CYTRYNIAN KLOMIFENU I IN VITRO A WADY WRODZONE

(National Birth Defects Prevention Study, USA)

WADA WRODZONA	CIĄŻE PO CC ADJUSTED OR	CIĄŻE PO IN VITRO ADJUSTED OR
Wady przegrody serca	**1.6 (1.1 – 2.1)**	**2.1 (1.1 – 4.0)**
Zwężenie aorty	**1.8 (1.1 – 3.0)**	-
Rozszczep wargi z lub bez rozszczepu podniebienia	1.1 (0.7 – 1.8)	**2.4 (1.2 – 5.1)**
Atrezja przełyku	**2.3 (1.3 – 4.0)**	**4.5 (1.9 – 10.5)**
Spodziectwo II lub III stopnia	1.5 (0.9 – 2.3)	2.1 (0.9 – 5.2)
Kraniostenoza	**1.9 (1.2 – 3.0)**	-
Bezmózgowie	**2.3 (1.1 – 4.7)**	-
Przepuklina pępowinowa	**2.5 (1.1 – 5.0)**	-

Reefhuis J. et al. Hum Rep. 2009 Reefhuis J. et al. Hum Rep. 2011

Rejestry Australii

3

IN VITRO A WADY WRODZONE

AUSTRALIA

308 974 porody

6 163 po IVF

THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Reproductive Technologies and the Risk of Birth Defects

Michael J. Davies, M.P.H., Ph.D., Vivienne M. Moore, M.P.H., Ph.D., Kristyn J. Willison, B.Sc., Philip J. Van Essen, M.P.H., Kevin Priest, B.Sc., Heather Scott, M.B., B.S., D.P.H. and Annabel S. Chan, M.B., B.S., D.P.H.

ABSTRACT

BACKGROUND

The extent to which birth defects after infertility treatment may be explained by underlying parental factors is uncertain.

METHODS

We linked a census of infants born with assisted reproductive technology in South Australia to a registry of birth terminations with a gestation period of at least 20 weeks or a birth weight of at least 400 g and registries of birth defects (including cerebral palsy and terminations of defects at any gestational period). We compared risks of birth defects (diagnosed before the child's fifth birthday) among singleton births in women who received treatment with assisted reproductive technology (ART) in women who had a previous pregnancies (i.e., without assisted conception) in women with a record of infertility treatment with assisted conception, pregnancies in women with a record of infertility, and pregnancies in women with no record of infertility.

RESULTS

Of the 308,974 births, 6163 resulted from assisted conception. The unadjusted odds ratio for any birth defect in pregnancies involving assisted conception (513 defects, 8.3%) as compared with pregnancies not involving assisted conception (17,546 defects, 5.8%) was 1.47 (95% confidence interval [CI], 1.33 to 1.62); the risk ratio adjusted odds ratio was 1.28 (95% CI, 1.16 to 1.41). The corresponding odds ratios with in vitro fertilization (IVF) (165 birth defects, 7.2%) were 1.26 (95% CI, 1.07 to 1.48) and 1.07 (95% CI, 0.90 to 1.26), and the odds ratios with intracytoplasmic sperm injection (ICSI) (139 defects, 9.9%) were 1.77 (95% CI, 1.47 to 2.12) and 1.30 (95% CI, 1.09 to 1.90). A history of infertility, either with or without assisted conception, was also significantly associated with birth defects.

CONCLUSIONS

The increased risk of birth defects associated with IVF was no longer significant after adjustment for parental factors. The risk of birth defects associated with ICSI remained increased after multivariate adjustment, although the possibility of residual confounding cannot be excluded. (Funded by the National Health and Medical Research Council and the Australian Research Council.)

	Assisted Conception (N=4333)	Spontaneous Conception (N=295,220)							Unadjusted Odds Ratio	Adjusted Odds Ratio†
	no. of births (%)									
Pojedyncza wada	361 (8.3)	16,989 (5.8)	1.48 (1.[illegible]					[illegible]8)	1.47 (1.33–1.62)	1.28 (1.16–1.41)
Zespół wad	95 (2.2)	4,690 (1.6)	1.38 (1.13–1.[illegible]					[illegible] (1.6)	1.51 (1.28–1.79)	1.33 (1.11–1.59)
Wada wrodzona	335 (7.7)	15,372 (5.2)	1.52 (1.35–1.70)					[illegible],862 (5.2)	1.45 (1.31–1.60)	1.25 (1.13–1.39)
Wada ukł. krążenia	78 (1.8)	3,472 (1.2)	1.54 (1.22–1.93)	1.[illegible]				3,614 (1.2)	1.47 (1.21–1.80)	1.33 (1.08–1.63)
Wada ukł. kos-mięś	130 (3.0)	4,776 (1.6)	1.87 (1.57–2.24)	1.50 (1.[illegible]				4,878 (1.6)	1.58 (1.34–1.86)	1.26 (1.06–1.50)
Wada ukł. mocz-płcio	95 (2.2)	4,872 (1.7)	1.34 (1.09–1.65)	1.25 (1.01–1.[illegible]			[illegible]4)	5,045 (1.7)	1.43 (1.20–1.70)	1.30 (1.08–1.54)
Wada ukł. pok.	34 (0.8)	1,832 (0.6)	1.26 (0.89–1.78)	1.18 (0.83–1.68)			[illegible] (0.9)	1,920 (0.6)	1.45 (1.10–1.90)	1.36 (1.02–1.82)
Wada OUN	22 (0.5)	1,104 (0.4)	1.37 (0.89–2.09)	1.34 (0.86–2.07)	1[illegible]		32 (0.5)	1,146 (0.4)	1.37 (0.95–1.97)	1.36 (0.94–1.99)
Wada ukł. oddech.	3 (0.1)	455 (0.2)	0.41 (0.12–1.40)	0.36 (0.11–1.18)	10 (0.[illegible]		13 (0.2)	469 (0.2)	1.31 (0.71–2.41)	1.10 (0.59–2.04)
Wady chromosomalne	23 (0.5)	1,088 (0.4)	1.43 (0.94–2.17)	0.87 (0.57–1.33)	6 (0.3)		[illegible]5) 29 (0.5)	1,102 (0.4)	1.28 (0.88–1.86)	0.82 (0.55–1.21)
Ch. metaboliczne	3 (0.1)	379 (0.1)	0.59 (0.19–1.79)	0.53 (0.16–1.74)	5 (0.3)		[illegible]17.9) 8 (0.1)	384 (0.1)	0.98 (0.43–2.23)	0.93 (0.40–2.18)
Ch. hematologiczne	5 (0.1)	225 (0.1)	1.38 (0.56–3.35)	1.61 (0.61–4.23)	1 (0.1)	3 (0.[illegible]	[illegible]01–135.65) 6 (0.1)	228 (0.1)	1.24 (0.55–2.80)	1.34 (0.56–3.20)
Rozszczep kreg.	17 (0.4)	496 (0.2)	2.35 (1.45–3.81)	2.22 (1.35–3.63)	16 (0.9)	50 (0.7)	[illegible] (0.69–2.77) 33 (0.5)	546 (0.2)	2.97 (2.03–4.34)	2.66 (1.79–3.94)

IN VITRO A WADY WRODZONE

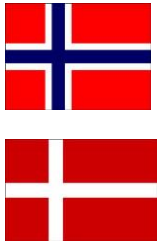
AUSTRALIA

po uwzględnieniu czynników rodzicielskich
tj. wieku, czasu trwania niepłodności

OR dla IVF 1.07 (95% CI 0.9 – 1.26)

„A history of infertility, either with or without assisted conception, was also significantly associated with birth defects.”

Rejestry Norwegii i Dani



4

BADANIA NAD RODZEŃSTWEM

Liv Bente Romundstad et al. Lancet 2008; 372: 737–43

- Badanie populacyjne – kohortowe
- CEL: Ocena wpływu metody in vitro na zdrowie dzieci.
  - Punkt odniesienia: populacja ogólna i rodzeństwo (pary z ciążami uzyskanymi wyłącznie po in vitro, po in vitro i ciążami spontanicznymi), populacja niepłodna oraz tylko z ciążami spontanicznymi (populacja płodna).
  - Porównania między grupami oraz wewnątrz grup.
- Rejestr porodów Królestwa Norwegii (2002-2005 dla par niepłodnych i 1984-2006 dla par płodnych)
- **1 209 151** porodów, **8229** porodów po in vitro, **2546** kobiet rodzących 1 dziecko po in vitro i 1 po ciąży spontanicznej

BADANIA NAD RODZEŃSTWEM

Liv Bente Romundstad et al. Lancet 2008; 372: 737–43

IVF vs ciąża spontaniczna w populacji płodnej

	ART	95%CI
Masa noworodka	Niższa o 25g	-14-35g
Czas trwania ciąży	Krótszy o 2 dni	-1,6-2,3 dnia
SGA	1,26 raza częściej	1,1-1,44
Obumarcie płodu	1,31 raza częściej	1,05-1,65

IVF vs ciąża bez ART w populacji niepłodnej

	ART	95%CI
Masa noworodka	Niższa o 9g	-18-36g
Czas trwania ciąży	Krótszy o 0,6 dnia	-0,5-1,7 dnia
SGA	0,99 raza rzadziej	0,62-1,57
Obumarcie płodu	0,36 raza rzadziej	0,2-0,67

Brak różnic w częstości występowania wad wrodzonych

Dane z Finlandii

5

POWIKŁANIA OKOŁOPORODOWE A CZAS STARAŃ O CIĄŻĘ

Prolonged time to pregnancy is associated with a greater risk of adverse outcomes

Births with known time to pregnancy (TTP) during the period 1989–2007 (n = 17,114) were analyzed to investigate associations between TTP and pregnancy outcome among couples that conceived spontaneously. The adjusted odds ratio (95% confidence interval) for poor neonatal health, including low Apgar score, low umbilical vein pH, and need for neonatal intensive care, was 1.51 (1.09–2.09) in women who had a TTP of 25–36 months and 1.60 (1.18–2.19) in women who had a TTP of ≥37 months compared with women with a TTP of 0–6 months. (Fertil Steril® 2010;94:1148–51. ©2010 by American Society for Reproductive Medicine.)

17114 porodów u par po wydłużonym okresie starań o **NATURALNE** zajście w ciążę (bez leczenia)

POWIKŁANIA OKOŁOPORODOWE

TTP 0-6 miesięcy vs. 7 – 37 miesięcy i dłużej

	%	OR
Stan przedrzucawkowy		
• 0 – 6 m	3,3	-
• 7 – 12 m	3,8	1,20
• 13 – 24 m	3,6	1,06
• 25 – 36 m	3,6	0,95
• ≥ 37 m	5,7	**1,68**
Cięcie cesarskie		
• 0 – 6 m	16,6	-
• 7 – 12 m	19,6	**1,24**
• 13 – 24 m	20,3	**1,24**
• 25 – 36 m	23,5	**1,42**
• ≥ 37 m	27,4	**1,83**
Poród przedwczesny		
• 0 – 6 m	5,3	
• 7 – 12 m	7,6	**1,38**
• 13 – 24 m	7,5	**1,32**
• 25 – 36 m	6,6	**1,17**
• ≥ 37 m	7,8	**1,44**
Niska masa urodzeniowa		
• 0 – 6 m	9,0	
• 7 – 12 m	10,3	1,18
• 13 – 24 m	9,9	1,16
• 25 – 36 m	13,5	**1,62**
• ≥ 37 m	11,9	**1,41**

	%	OR
Słaby stan zdrowia noworodka (Apgar ≤ 7)		
• 0 – 6 m	9,4	
• 7 – 12 m	10,9	1,16
• 13 – 24 m	11,0	1,10
• 25 – 36 m	12,7	**1,51**
• ≥ 37 m	14,5	**1,60**
Słaby stan zdrowia noworodka (Apgar ≤ 7), niekorzystny przebieg porodu		
• 0 – 6 m	7,8	
• 7 – 12 m	8,9	1,15
• 13 – 24 m	8,3	1,00
• 25 – 36 m	10,7	**1,54**
• ≥ 37 m	12,6	**1,64**
Liczebność grup:		
• 0 – 6 m	13 116	
• 7 – 12 m	2 208	
• 13 – 24 m	1 041	
• 25 – 36 m	362	
• ≥ 37 m	387	
• **razem**	**17 114**	

Raatikainen et al. Fertility and Sterility 2010

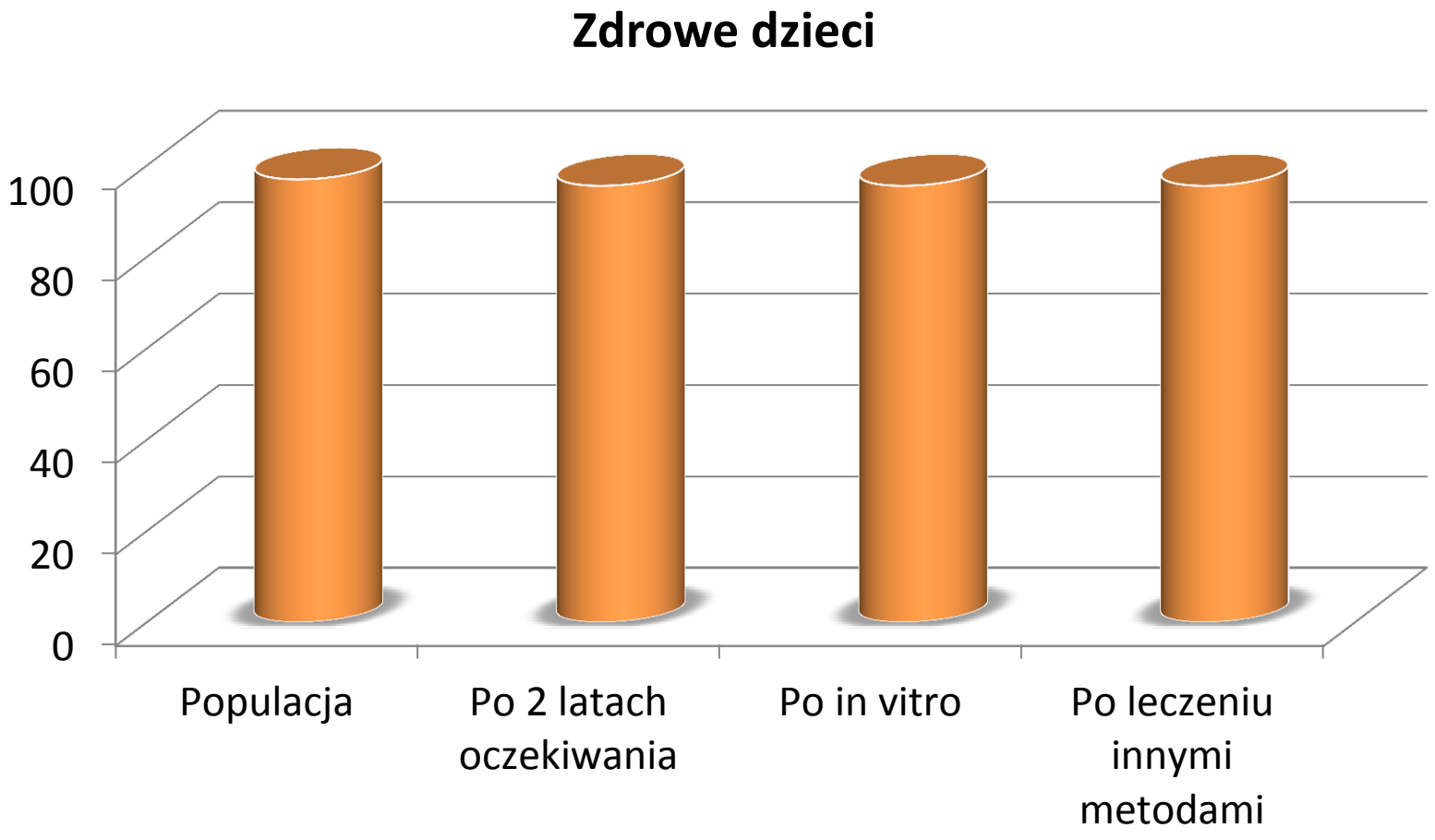
PODSUMOWANIE

- Populacyjne ryzyko urodzenia dziecka z wadą wrodzoną wynosi około 3%.
- Dzieci urodzone po leczeniu niepłodności (niezależnie od zastosowanej metody terapeutycznej) mają ok. 1,5 raza większe ryzyko wystąpienia wad wrodzonych.
- Podobne ryzyko występuje u par o obniżonej płodności, które mają dzieci poczęte naturalnie w późniejszym wieku lub po dłuższym od przeciętnego okresie oczekiwania.

PODSUMOWANIE

- Dzieci po ART z ciąż pojedynczych są nieco mniejsze (o 25-75g). Zależność ta nie dotyczy ciąż wielopłodowych i ciąż po mrożeniu zarodków.

Zdrowie dzieci po leczeniu niepłodności



W grupie ludzi o ograniczonej płodności ryzyko wad wynosi 4,5% niezależnie od sposobu poczęcia

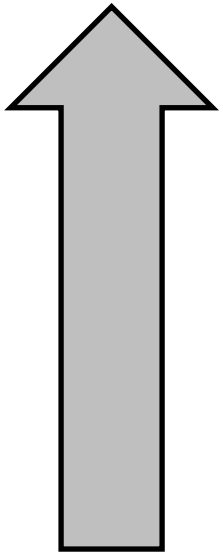
Sławek
Spontaniczne
po 2-3 latach oczekiwania

Bartek
Po in vitro

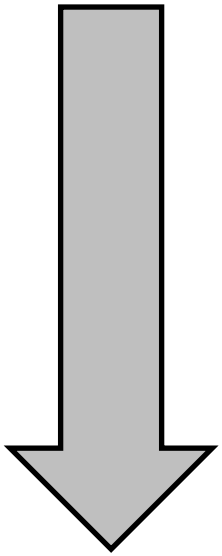
Leszek
Po innej interwencji,
np. laparoskopii,
stymulacji jajeczkowania
lub naprotechnologii

Koszty, dostępność, wyniki leczenia

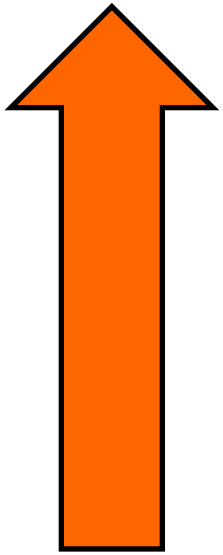
koszt



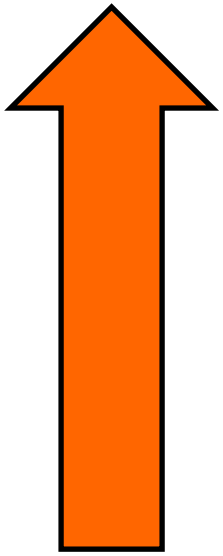
dostępność



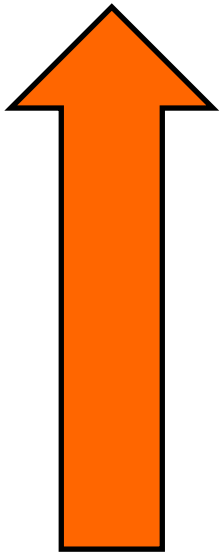
ICSI



ciąże mnogie



powikłania



AFP/Getty Images

Poles apart

Poland is finally facing up to legislation in IVF, but not without acrimony and bitter conflicts of ideology.

Simon Brown reports.

Until recently, there were just three countries in Europe with little or no formal legislation for IVF: Ireland, Croatia, and Poland. Ireland does have detailed professional guidelines endorsed by its health ministry, while the Croat Parliament at the end of October did finally pass an amended law on IVF making it easier for couples to receive treatment. The new Croat law, however, despite strong criticism, now bans the freezing of embryos, which had thus far been excluded from legal restraint. Thus, as this new decade begins, only Poland among the 27 member states of the EU is without any formal regulation for IVF. And that too is about to change.

After a year of political debate, intense lobbying and the ideological intervention of pseudo science, the draft texts of four legislative proposals on IVF now lie with the leader of Poland's Parliament; when - and if - implemented as law, the legislation (from whichever proposal) would finally bring IVF in Poland under statutory control. But before then, the Speaker of the Parliament may send the proposals back to their sponsors for legal clarification, he may reject them outright, or he may pass them on to the Health Commission before formal readings in Parliament. And only then, after three readings, would a bill progress to become law.

There's still a long way to go, and some say that 2010 is too politically busy (with a presidential election) for something as delicate as IVF to find its proper place in the agenda. Maybe 2011 . . .

But whether this year or next, no-one is doubting that IVF will, in one shape or another, be brought under legal control in Poland - though not without a battle of deep-rooted principles at whose heart lie the place and ideologies of the Catholic church. What's worrying to those practising IVF is how restrictive that legal control will be.

The four proposals represent a range of legislative options which at one extreme would apply restraints on IVF not unlike those of Italy's 'Law 40' legislation of 2004. At another end lies a more reasonable approach which recognises IVF as a legitimate treatment for infertility, and with it the basics of good ART practice as defined in ESHRE's position statement of 2007.

One proposal, however, put forward by Poland's opposition right-wing Law and Justice party, calls for an outright ban on IVF, taking as its lead the Catholic church's position that human life begins

Co warto zapamiętać?

- Istotnym źródłem powikłań po leczeniu niepłodności jest ciąża wielopłodowa.
- Celem leczenia niepłodności jest poród jednego zdrowego noworodka.
- Ważne jest nieustanne monitorowanie danych nt. dzieci urodzonych po ART, jednak wyłącznie w oparciu o dane pochodzące z dużych rejestrów (np. krajowych) lub dużych badań prospektywnych.

Co warto zapamiętać?

- Wiek rodziców
- Ciąża
- Niepłodność

warunkują zdrowie dzieci po ART.

- Nosicielstwo aberracji chromosomowych
- Procedury kliniczno-laboratoryjne
  - Stymulacja jajeczkowania
  - Hodowla pozaustrojowa zarodków
  - Kriokonserwacja