Current Research on Multiple Births

ANNUAL BIBLIOGRAPHY – 1984

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Subject Sections *

Title, authors, and journal source, alphabetized by journal:

- Behavior and Physiology
- Genetic Traits and Methods
- Obstetrics and Pediatrics
- General

Author Section

Authors, titles, journal source, and abstract (if available), alphabetized and cross-indexed by all authors.

(*) The first three subject sections include other topics related to these headings. Classification is performed automatically on the basis of keywords. Some articles appear only in the General section for lack of appropriate keywords. Some articles may appear in two or three of the specific subject sections.

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† A Hungarian twin study on hand clasping, arm folding and tongue curling. Forrai G, et al. **Acta Biol Hung** 1983;34(1):99–106

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† Successful removal of a partial Siamese twin with a carbon dioxide laser. Joubert M, et al. **S Afr Med J** 1983 Nov 26;64(23):913–4

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† Agenesis of the penis, scrotal raphe, and anus in one of monoamniotic twins. Berry SA, et al. **Teratology** 1984 Apr;29(2):173–6

† Pulmonary artery sling in identical twins--report of two cases. Westaby S, et al. **Thorac Cardiovasc Surg** 1984 Jun;32(3):182–3

Renal transplant with great difficulty in proving monozygosity between donor and recipient [letter] Ihle BU, et al. **Transplantation** 1984 Aug; 38(2):199–200

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NLM-DUO-A84 00007

AUTHOR SECTION

A

Abadi RV, Dickinson CM, Lomas MS, Ackerley R: Congenital idiopathic nystagmus in identical twins. Br J Ophthalmol 1983 Oct;67(10):693-5
Using an infrared recording system we examined the nystagmus waveforms of a pair of monozygotic twin girls and found them to be dissimilar. It is proposed that in view of the common mode of inheritance the differences are a result of environmental influences.

Abramson A, Sperling R, Moshirpur J: Harlequin fetus in twins. Mt Sinai J Med (NY) 1984 Jun;51(3):290-1

Ackerley R see **Abadi RV**

Adhikari M see **Norman RJ**

Agarwal RD see **Bhargava V**

Aizawa Y see **Enomoto S**

Akbarnia BA, Heydarian K, Ganjavian MS: Concordant congenital spine deformity in monozygotic twins. J Pediatr Orthop 1983 Sep; 3(4):502-4
The cases of monozygotic twins with concordant congenital spine deformity are presented. It is suggested that genetics, environment, or a combination of the two factors (multifactorial) might have been the cause of the anomalies. The insult may have been caused by hypoxia to both embryos.

Alberda AT see **Zeilmaker GH**

Albers R see **Bedizel M**

Allen N, Kissel P, Pietrasiuk D, Perlow MJ: Myasthenia gravis in monozygotic twins. Clinical follow-up nine years after thymectomy. Arch Neurol 1984 Sep;41(9):994-6
Genetically proved monozygotic female twins in whom myasthenia gravis developed in their 20s initially had their disease well controlled with anticholinesterase medication. Because of increasing resistance to medication, twin 1 had her thymus removed, after which the symptoms decreased. Predicated on the improvement in her sister and the need for increasing medication to allay symptoms, and after proof of monozygosity, twin 2 also underwent thymectomy, with subsequent symptomatic improvement. The twins were followed up nine and six years after thymectomy, respectively. Monozygotic twins with myasthenia gravis are generally young women, with onset of disease in one occurring within one to three years of the other. Reports of only one affected twin may be misleading because of inadequate documentation of monozygosity, absence of long-term observation, or both. Serial investigations of the 'uninvolved' twin in a monozygous pair and proof of monozygosity should be obtained to aid in early diagnosis and treatment of this illness, as well as to study the pathogenesis of myasthenia gravis prior to symptom onset.

Alvira MM see **Juberg RC**

Amano K see **Takenaka K**

Ambani LM see **Raghavan KR**

Anderson KC, Li FP, Marchetto DJ: Dizygotic twinning, cryptorchism, and seminoma in a sibship. Cancer 1984 Jan 15;53(2):374-6
Cryptorchism was diagnosed in all 3 male members of 2 pairs of dizygotic twins in a sibship. Two of these brothers developed seminomas at age 31 and 33 years. Studies revealed a nephew with an atrophic testicle, but no additional instances of twinning, cryptorchism or testis cancer. Cryptorchism has been reported previously in 3 of 8 sets of twins with testis cancer, but rarely in familial testis cancer affecting other relatives. Hormonal factors may be involved in the association of twinning, cryptorchism and testis cancer in this family.

Anderson RL see **Taylor MB**

Antunes JL, Sharer LR, Pellock JM: Occipital encephalocele--a case of conjoined twinning? Neurosurgery 1983 Dec;13(6):703-7
A case of an occipital encephalocele is described. Morphological analysis of the surgical specimen suggests that the case represents an instance of incomplete conjoined twinning.

Aoki N: Moyamoya syndrome in twins [letter] J Neurosurg 1984 Sep;61(3):617

Aoki S see **Kigawa J**

Apuzzio JJ, Ganesh V, Landau I, Pelosi M: Prenatal diagnosis of conjoined twins. Am J Obstet Gynecol 1984 Feb 1;148(3):343-4

Aram GN see **Singh M**

Arnon S see **Palmer PE**

Arya LS see **Singh M**

Aschenbrener CA see **Hartung RW**

Aumann G see **Blake GD**

Auslander L see **Silbermann M**

Awotwi JD, Zusman J, Waring WW, Beckerman RC: Benign hemangioendothelioma--a rare type of posterior mediastinal mass in children. J Pediatr Surg 1983 Oct;18(5):581-4
Two infants with benign hemangioendotheliomas of the posterior mediastinum are reported here. The neoplasms did not produce symptoms and were fortuitously discovered by chest roentgenograms. Computed tomography (CT) was useful in delineating the extent of the lesions preoperatively.

Aymé S see **Mattei JF**

B

Badbade JN see **Raghavan KR**

Baird PJ see **Delprado WJ**

Baker H see **Darley CR**

Balázs C, Stenszky V, Kozma L, Farid NR: Specific suppressor T cell function in a patient with Graves' disease and her healthy identical twin. Clin Endocrinol (Oxf) 1984 Jun;20(6):683-93
Immunoregulatory defects have been suggested in autoimmune disorders including Graves' disease. The finding that Concanavalin A-induced suppressor T cell function was sub-optimal in Graves' disease has been disputed; a restricted defect in TSH-receptor antigen-specific suppressor cells has instead been proposed by Okita et al. (1980). To explore this further, we studied both specific and non-specific suppressor cell function in a pair of HLA identical twins, one of whom had Graves' disease. By contrast to the euthyroid healthy twin and 10 healthy controls (612 cpm/10(6) cells) the patient's mononuclear cells (MNCs) incorporated more (3H)-thymidine (7365 cpm/10(6) cells) in response to thyroid membrane antigen (TMA). Removal of glass-adherent cells before addition of antigen increased (3H)-uptake by cells from the healthy twin to 1808 cpm but reduced those from the Graves' twin to 3411 cpm. The influence of MNCs cultured with Con A or TMA for 24 h upon (3H)-thymidine uptake by 2 X 10(6) indicator cells triggered by Con A for 72 h or TMA for 96 h was taken as a measure of non-specific and specific suppressor cell function respectively. Both Con A and TMA induced suppressor cells were reduced, the latter to a more marked degree, in the patient compared to the healthy twin; mixing of MNCs from patient and healthy twin in a 1:1 ratio improved the patient suppressor cell function. When the patient's

NLM-DUO-A84 00008

MNCs triggered for 24 h with Con A were mixed in a 1:1 ratio with her fresh MNCs and TMA, less blast transformation was found compared to an equal number of fresh cells (3H-thymidine uptake 3250 vs 7365 cpm/10(6). Similarly, preincubated cells from the healthy twin had greater suppressive effect (1820 cpm/10(6) cells). We conclude that (1) the HLA identical healthy twin has TMA autoreactive lymphocytes regulated by adherent regulatory cells; (2) the increased ratio of helper/suppressor cells in the adherent cell population in the patient leads to a decrease of (3H) incorporation upon their removal; (3) in the patient, the specific suppressor cell defect is more severe than the non-specific defect; (4) lack of specific TMA induced triggering may be the critical immunoregulatory defect in Graves' disease.

Bánkövi G see **Forrai G**
Bannai S see **Enomoto S**
Bar-Maor JA see **Keret D**
Bar-Maor JA see **Silbermann M**
Bar-Ziv J see **Siplovich L**
Barakat MH see **Khuffash FA**
Bard H see **Sarda P**
Barling R see **Knox EG**

Barnett AH, Spiliopoulos AJ, Pyke DA, Stubbs WA, Rowold E, Hoffmann P, Faller A, Kilo C, Miller JP, Williamson JR: Muscle capillary basement membrane in identical twins discordant for insulin-dependent diabetes. Diabetes 1983 Jun;32(6 Pt 1):557-60

Although hereditary factors clearly modulate susceptibility to develop diabetes, their role as determinants of vascular complications associated with diabetes remains unclear. These studies were undertaken to further assess the extent to which capillary basement membrane thickening (CBMT) is governed by metabolic derangements associated with relative or absolute insulin deficiency versus genetic determinants of vascular disease closely linked to but independent of those modulating susceptibility to develop relative or absolute insulin deficiency. Quadriceps muscle capillary basement membranes obtained by needle biopsy were examined in eight pairs of identical twins discordant for insulin-dependent diabetes (IDD) for 11-29 yr. Biopsy material from one of the diabetic twins was technically unsuitable for study. The average CBM width of the IDD twins was found to be significantly thicker than that of their nondiabetic (ND) twin mates (t = 2.50, P less than 0.025). Three IDD, but none of the ND twins, had basement membrane width values in excess of 95% upper tolerance intervals for age- and sex-matched controls with no family history of diabetes. The absence of CBMT in all of the ND twins and in four of the IDD twins with diabetes of 15-24 yr duration argues against the existence, in this group of subjects, of hereditary determinants of diabetic vascular disease linked to those governing susceptibility to develop diabetes. In addition, the absence of CBMT in four subjects with IDD of 15-24 yr duration is consistent with evidence from other studies indicating that diabetic microangiopathy is not an inevitable consequence of the diabetic milieu.(ABSTRACT TRUNCATED AT 250 WORDS)

Barter RA see **Yovich JL**
Bartrum RJ Jr see **Denholm TA**
Bass JW see **Wiswell TE**
El Beaini JL see **Martin NG**
Beale MG see **Schroeder JL**
Beaumont C see **de Verneuil H**
Beckerman RC see **Awotwi JD**

Bedizel M, Albers R: Hereditary Factor VII deficiency in newborns. Clin Pediatr (Phila) 1983 Nov; 22(11):774-5

Beighton P see **Viljoen DL**
Benirschke K see **Jones KL**
Berg K see **Magnus P**
Bergsjø P see **Nilsen ST**
Berkowitz RL see **Chervenak FA**
Berkowitz RL see **Romero R**

Berry SA, Johnson DE, Thompson TR: Agenesis of the penis, scrotal raphe, and anus in one of monoamniotic twins. Teratology 1984 Apr; 29(2):173-6

Severe defects in the development of the caudal axis are rare, but lead to profound consequences for the fetus. They result from damage to multiple germ layers at a very early stage of development and vary in severity depending on the timing and degree of insult incurred. One of a set of identical male twins presented with persistence of the primitive cloaca with an absent phallus and anal atresia, but normal limb development. This combination of penile agenesis, imperforate anus, and absence of the scrotal and perineal raphae is an ominous physical finding indicative of severe renal anomalies, which in all cases have been incompatible with extrauterine survival. This constellation of findings, of which our patient is only the sixth reported example, probably results from a primary defect in caudal mesoderm migration before the fourth week of gestation. In this case, the defect may have occurred as a consequence of monochorionic monoamniotic monozygotic (MZ) twinning.

Beseda AJ see **Khuffash FA**
Bewtra AK see **Hopp RJ**

Bhargava V, Agarwal RD, Singh LI, Chatterjee M, Bhatia B: Intrauterine growth of twins. Indian Pediatr 1983 Jun;20(6):401-7

Bhatia B see **Bhargava V**
Bhatnagar AS see **Martin NG**
Bilinki I see **Filkins K**

Bisbing RE, Wolner MF: Microscopical discrimination of twins' head hair. J Forensic Sci 1984 Jul; 29(3):780-6

Twin populations are ideal for studying human variation; a study of twin's hair, therefore, provided a better understanding of the value of hair comparisons. Duplicate head hair samples from 17 pairs of twins and one set of identical triplets were compared in a verified blind study. In addition to the direct comparison of all twins, random samples of two or three hairs were compared with randomly selected groups of known samples in a second blind study, to better simulate an ordinary forensic science case. Features commonly used by forensic hair examiners were adequate to distinguish hair samples from each twin from all other samples, illustrating the power of microscopical comparison when numerous questioned hairs are available in evidence. When two or three hairs were compared with randomly selected known samples, several were indistinguishable from hair samples other than the true source, proving once again that a human hair can never be associated with one person to the exclusion of all others.

Bixler D see **Hartsfield JK Jr**
Björntorp P see **Krotkiewski M**

Blake GD, Knuppel RA, Ingardia CJ, Lake M, Aumann G, Hanson M: Evaluation of nonstress fetal heart rate testing in multiple gestations. Obstet Gynecol 1984 Apr;63(4):528-32

Routine serial nonstress fetal heart rate testing was evaluated in 94 patients with multiple gestations (193 fetuses). Reactive testing was associated with an

NLM-DUO-A84 00009

AUTHOR SECTION

uncomplicated perinatal outcome in 89% of the cases. Nonreactive fetuses had a significantly higher incidence of perinatal morbidity, including fetal distress in labor (77.8%), asphyxia (48%), and intrauterine growth retardation (28%). Overall perinatal mortality (21/1000) was nearly comparable to that observed in singleton pregnancies. Nonreactive fetuses had a perinatal death rate that was more than six times that of the reactive ones (80/1000 versus 12/1000). Antepartum nonstress testing was found to be a highly reliable and predictive tool in the assessment of multiple gestations.

Boklage CE: Differences in protocols of craniofacial development related to twinship and zygosity. J Craniofac Genet Dev Biol 1984;4(2):151-69
Using 56 adult dental diameters as a subsystem model for craniofacial development, we show that monozygotic (MZ), dizygotic (DZ), and singleton groups differ significantly in developmental relationships assessed by multivariate statistical methods under commonly accepted assumptions. Given the differences observed, we suggest that any assumption of developmental equivalence between MZ and DZ twins, or between twins of either group and singletons, for variables of craniofacial or behavioral development, may be subject to serious doubt. Implications for twin study theory and methodology, and for study of early human development, are discussed.

Borgatta L: Management of breech second twin [letter] Am J Obstet Gynecol 1984 Jan 1;148(1):120-1

Bouchard TJ Jr see **Segal NL**

Boyle N see **Freeman P**

Brandrup F: Psoriasis in first-degree relatives of psoriatic twins. Acta Derm Venereol (Stockh) 1984; 64(3):220-6
Analysis of the presence of psoriasis in all first-degree relatives of psoriatic twin probands, 38 monozygotic (MZ) and 24 dizygotic (DZ), has been performed in order to clarify if genetic heterogeneity might be present (the twin-family method). The probands were derived from a population based sample of like-sexed twin pairs. An almost identical frequency of psoriasis in parents, siblings and children, with no sex difference, was found. By comparisons of empirical risk figures for psoriasis in first-degree relatives of concordant as compared with discordant MZ probands and HLA-B 13 and/or HLA-B 17 positive MZ probands compared with MZ probands lacking these antigens, no clue to the presence of genetic heterogeneity was found. An almost identical risk in co-twins and ordinary siblings of DZ-probands was found. The data were incompatible with autosomal recessive or X-linked inheritance, but not incompatible with autosomal dominant inheritance with reduced penetrance or with multifactorial inheritance.

Brien JH see **Wiswell TE**

Bryngelsson C see **Pero RW**

Bryngelsson T see **Pero RW**

Buck JR see **Haller JA Jr**

Buck JR see **Miller D**

Budnitz E see **Fisher M**

Burgoine E, Wing L: Identical triplets with Asperger's syndrome. Br J Psychiatry 1983 Sep;143:261-5
The case histories are presented of three 17 year old identical male triplets with Asperger's syndrome. They show the impairments affecting social interaction, non-verbal communication and imagination, the motor clumsiness, and the circumscribed interests characteristic of that condition. They also have some features in their history and present behaviour more typical of childhood autism. Despite marked overall similarities, the three differ in the severity with which their problems are manifested. A relationship can be found between the amount of peri- and post-natal trauma, degree of intellectual impairment and number of autistic features. The findings support the hypothesis that autism and Asperger's syndrome are on the same continuum of pathology.

Burke MJ see **Sanitato JJ**

Byard PJ, Sharma K, Russell JM, Rao DC: A family study of anthropometric traits in a Punjabi community: II. An investigation of familial transmission. Am J Phys Anthropol 1984 Jun; 64(2):97-104
Path analysis is used to characterize family resemblance for anthropometrics in twins and nuclear families from the Punjabi population of India. Significant positive assortative mating exists with respect to many body measurements, but not for cranial or facial variables. Evidence of a maternal effect for five measurements of bone diameter is reported. Twin resemblance is increased by a component not found in other pairs of relatives for all variables except nasal height, facial length, ear length, and head breadth. Although all variables have significant transmissible components, many have parameter estimates which are not consistent with strictly polygenic inheritance. Some form of cultural transmission is implicated for such variables, especially for those related to fatness levels.

C

Cainelli T, Marchesi L, Pasquali F, Rozzoni M: Monozygotic twins discordant for cutaneous mastocytosis. Arch Dermatol 1983 Dec; 119(12):1021-2

Calagan JL: The conjoined twins born near Worms, 1495. Woodcut by an unknown artist, from a pamphlet by Sebastian Brant. New Haven, Yale Medical Library, Clements C. Fry collection. J Hist Med Allied Sci 1983 Oct;38(4):450-1

Calne DB see **Ward CD**

Camargo EE see **Wong DF**

Campbell SS see **Webb WB**

Cao A see **Cianchetti C**

Carey G see **Gottesman II**

Carlo GM, Carlton MA: An unusual set of triplets: twin intrauterine pregnancy with singleton extrauterine pregnancy. Aust NZ J Obstet Gynaecol 1984 Feb;24(1):51-4

Carles D see **Serville F**

Carlton MA see **Carlo GM**

Carmi R see **Siplovich L**

Carpenter CB see **Ganda OP**

Cefalo RC see **Koontz WL**

Chadwick JM, Gilmore DW, Herbert WW: The problem of antenatal diagnosis of microcephaly by ultrasonography in twin pregnancy. Aust NZ J Obstet Gynaecol 1983 Nov;23(4):244-7
A case report is presented in which microcephaly was suspected by serial scanning in a first pregnancy and was subsequently proven. However, a diagnosis of apparent microcephaly in one of a pair of dizygotic twins in the patient's second pregnancy proved incorrect and illustrates that there are problems with genetic counselling in this condition.

Chakraborty R see **Daiger SP**

Champlin RE, Feig SA, Sparkes RS, Galen RP: Bone marrow transplantation from identical twins in the treatment of aplastic anaemia: implication for the

NLM-DUO-A84 00010

pathogenesis of the disease. Br J Haematol 1984 Mar; 56(3):455–63
Treatment of aplastic anaemia by bone marrow transplantation from a syngeneic (identical twin) donor has provided insights into the pathophysiology of the disease. We report from patients with severe anaemia who were treated by syngeneic bone marrow transplantation. None of the patients had sustained recovery of peripheral blood counts. All four received second transplants from the same twin donor after immunosuppressive conditioning treatment. Each had prompt recovery of haematopoiesis. A review of the literature indicates that failure of syngeneic bone marrow transplantation in patients with aplastic anaemia is not uncommon. These data indicate that aplastic anaemia may be caused by a mechanism other than an absence or intrinsic abnormality of haematopoietic stem cells in many patients.

Chang E see **Romero R**

Chang KY see **Chi JG**

Chatterjee M see **Bhargava V**

Chatterjee MS, Weiss RR, Verma UL, Tejani NA, Macri J: Prenatal diagnosis of conjoined twins. Prenat Diagn 1983 Oct;3(4):357–61
A case of conjoined twins with open spina bifida prenatally diagnosed at the twenty-third week of gestation is presented. The early detection of this rare and unusual malformation was initiated by the observation of markedly elevated maternal serum alphafetoprotein values. Ultrasound evidence of a misshaped cephalic pole and the appearance of one fetal body on real-time ultrasound was strongly suggestive. Elective midtrimester termination confirmed the prenatal diagnosis and was followed by a benign postpartum course.

Chen AT see **Kassam G**

Chen T see **Socol ML**

Chervenak FA, Johnson RE, Berkowitz RL, Grannum P, Hobbins JC: Is routine cesarean section necessary for vertex–breech and vertex–transverse twin gestations? Am J Obstet Gynecol 1984 Jan 1; 148(1):1–5
Ninety-three vertex–breech and 42 vertex–transverse twin gestations were managed at Yale–New Haven Medical Center during a 5-year period. Antepartum diagnosis of twin gestation occurred in 93% of the cases, and diagnosis was made before delivery of the second twin in 97% of the cases. Seventy-two (78%) of the vertex–breech and 22 (53%) of the vertex–transverse twins were delivered vaginally. Breech extraction was used for delivery of 76 second twins. Below a birth weight of 1,500 gm, there were six neonatal deaths, four cases of documented intraventricular hemorrhage, and a 67% occurrence of depressed 5-minute Apgar scores. Above a birth weight of 1,500 gm, there were no cases of neonatal death or documented intraventricular hemorrhage and a 5% occurrence of moderately depressed 5-minute Apgar scores. Birth trauma occurred in a 3,420 gm second twin delivered by breech extraction. This infant suffered a greenstick fracture of the right clavicle and a nondisplaced fracture of the right humerus that was not associated with permanent residual injury. We think that, for birth weights greater than 1,500 gm, routine cesarean section for vertex–breech or vertex–transverse twin gestation may not be necessary.

Chi JG, Lee YS, Park YS, Chang KY: Fetus-in-fetu: report of a case. Am J Clin Pathol 1984 Jul; 82(1):115–9
A case of fetus-in- fetu is reported. It occurred in an 8-week-old Korean boy who had been born by cesarean section due to abdominal distension. The fetus-in- fetu was connected to the superior mesenteric artery and consisted of two masses, apparently representing two portions of an acardiac monster. There was an amniotic membrane covering both masses, and the umbilical cord clearly was identifiable. One mass included the brain, eye, trachea, salivary glands, thyroid, pancreas, spleen, etc., while the other mass contained extremity bones, vertebrae, testis, adrenals, and intestinal loops. This is probably a case of separated fetus-in- fetu that showed unusually well-developed internal organs.

Chrispin A see **Westaby S**

Christopher CR see **Juberg RC**

Cianchetti C, Marrosu MG, Manconi PE, Loi M, Cao A: Subacute sclerosing panencephalitis in only one of identical twins. Case report with study of cell-mediated immunity. Eur Neurol 1983; 22(6):428–32
A case of identical twins is reported in which only 1 was affected by subacute sclerosing panencephalitis. The affected twin showed a defect of cellular immunity, mainly a decrease of T lymphocytes. This defect therefore appears to be a consequence and not a genetic determinant of the disease.

Clark F see **Hutton C**

Clark P see **Gibson JB**

Clarren SK see **McKay M**

Cole GW, Herzlinger D: Alopecia universalis in identical twins. Int J Dermatol 1984 May;23(4):283

Colombani P see **Haller JA Jr**

Colombani P see **Miller D**

Connor JM see **Yates JR**

Corey LA see **Nance WE**

Cotes JE see **Kagamimori S**

Crawford G see **Emder P**

Crawford TO see **Zionts LE**

Cronjé HS see **Deale CJ**

Crow HC see **Denholm TA**

Currey HL see **Darley CR**

Czeizel A see **Métneki J**

D

Daiger SP, Miller M, Chakraborty R: Heritability of quantitative variation at the group-specific component (Gc) locus. Am J Hum Genet 1984 May; 36(3):663–76
Human group-specific component (Gc) is the plasma transport protein for vitamin D; in addition, polymorphic electrophoretic variants of Gc are found in all human populations. Because of its physiologic importance and in view of the extensive genetic variation at the Gc locus, we have determined the heritability of quantitative variation in Gc by comparing a series of monozygotic (MZ) and dizygotic (DZ) twins of known Gc genotype. The series included 31 MZ twin pairs, 13 DZ twin pairs, and 45 unrelated controls. Since Gc concentration is increased by estrogens, pregnant women and women taking oral contraceptives were excluded. We found no age-related differences in Gc concentration or differences between males and females, but the concentrations of Gc in the three electrophoretically determined genotypes were significantly different from each other. Using classical methods of heritability analysis, the overall heritability of variation in Gc concentration is approximately 70%. Heritability in males is greater than in females, probably reflecting the additional

environmental effect of estrogens in women. To determine if the differences in Gc concentration between the three genotypes explain the high heritability, a new variance decomposition procedure was developed following classical methods in quantitative genetics. Application of this method suggests that 19% of the total variation in Gc concentration, combining both sexes, is due to electrophoretic differences between individuals (30% in females and 20% in males). Thus, the genetic component of variation in Gc concentration can be decomposed into a major gene component--the result of electrophoretic variation at the structural locus--and a second, unexplained, polygenic component.

Dambrosia J see **Ward CD**

d'Apice A see **Ihle BU**

Darley CR, Currey HL, Baker H: Acne fulminans with arthritis in identical twins treated with isotretinoin. J R Soc Med 1984 Apr;77(4):328-30

Dawkins RL see **Yovich JL**

Deale CJ, Cronjé HS: A review of 367 triplet pregnancies. S Afr Med J 1984 Jul 21;66(3):92-4
Questionnaires were sent to 452 hospitals in the RSA and SWA/Namibia requesting information on triplet pregnancies over a 10-year period. Information on 367 sets of triplets from 150 hospitals was adequate for analysis. The incidence of triplets was 0,04% of all deliveries. As many as 45% of triplets were diagnosed during the first or second stage of labour. These infants had a significantly lower birth weight than those diagnosed at an antenatal clinic (P less than 0,01). The mean birth weights of babies that died in utero or neonatally (within 7 days) were significantly lower than those in survivors (P less than 0,0001). Caesarean section was the delivery method for 14% of 1 002 infants and perinatal mortality was improved for the second and third babies in comparison with second and third babies delivered vaginally (P less than 0,003 and P less than 0,002 respectively). It is concluded that the diagnosis of triplets should be made at the earliest possible stage of pregnancy, and that following adequate antenatal care all triplets should be delivered by caesarean section, except under ideal uncomplicated conditions where vaginal delivery may be feasible.

De Bie S see **Van Staey M**

de Gamarra E, Helardot P, Moriette G, Murat I, Relier JP: Necrotizing enterocolitis in full-term newborns. Biol Neonate 1983;44(3):185-92
During a 17-month period, 19 full-term newborn infants were hospitalized for necrotizing enterocolitis (NEC). 10 of these infants had no apparent risk factors. Only 7 suffered acute fetal distress. 16 of the 19 infants were born in the same hospital. Toxicological and bacteriological investigations of possible cause revealed no specific agent. Virological analysis of 8 stool samples revealed the presence of corona virus in 5 of the 8.

Deligdisch L see **Gusberg SB**

Delprado WJ, Baird PJ: Cephalothoracopagus syncephalus: a case report with previously unreported anatomical abnormalities and chromosomal analysis. Teratology 1984 Feb; 29(1):1-9
A case of cephalothoracopagus conjoined twins is presented. The abnormality was detected antenatally by the use of ultrasonography. A detailed anatomical description is given, including previously unreported abnormalities of the cerebrum and genito-urinary tract. Chromosomal analysis was also performed. This showed a pericentric inversion of one chromosome 9 in the fetus. Studies performed on the mother showed pericentric inversion of both chromosome 9s. A comparison of this case with previously reported cases in the literature is then given.

Denholm TA, Crow HC, Edwards WH, Simmons GM Jr, Marin-Padilla M, Bartrum RJ Jr: Prenatal sonographic appearance of meconium ileus in twins. AJR 1984 Aug;143(2):371-2

Deppe WM see **Norman RJ**

De Roose J see **Van Staey M**

de Verneuil H, Beaumont C, Deybach JC, Nordmann Y, Sfar Z, Kastally R: Enzymatic and immunological studies of uroporphyrinogen decarboxylase in familial porphyria cutanea tarda and hepatoerythropoietic porphyria.
Am J Hum Genet 1984 May;36(3):613-22
Uroporphyrinogen decarboxylase activity was measured in hemoglobin-free lysates from two patients with hepatoerythropoietic porphyria (HEP) and from 12 unrelated patients with familial porphyria cutanea tarda (PCT). In HEP patients, enzyme activities were 5% of normal, and familial studies clearly confirmed that patients with HEP are cases of homozygous PCT. Immunoreactive uroporphyrinogen decarboxylase was measured by developing a direct and noncompetitive enzyme immunoassay (EIA). For the 12 familial PCT patients, we found an immunoreactive protein decreased (51%) to the same extent as the catalytic activity (48%) [cross-reactive immunological material (CRIM) negative]. The children from the HEP family were also CRIM negative, contrasting with another HEP family previously described as CRIM positive; our data support the hypothesis of a heterogeneity in familial uroporphyrinogen decarboxylase deficiency.

Dewhurst J: Royal twins. Br Med J [Clin Res] 1983 Dec 24-31;287(6409):1937-9

Deybach JC see **de Verneuil H**

Dhareshwar SS see **Raghavan KR**

Dhib-Jalbut S, Haddad FS: Subacute sclerosing panencephalitis in one member of identical twins. Neuropediatrics 1984 Feb;15(1):49-51
Two identical twins contracted measles simultaneously in the same house at the age of six months. Only one member developed subacute sclerosing panencephalitis (SSPE) at the age of ten years. The other member remained healthy until after two years of follow-up. This case emphasizes the importance of factors other than host-measles virus interaction in the pathogenesis of SSPE.

Diamond N see **Filkins K**

Dicker D, Peleg D, Samuel N, Feldberg D, Goldman JA: Holoacardius: radiologic investigation. Early Hum Dev 1983 Dec;9(1):59-65
A case of holoacardius is presented from a monozygotic twin pregnancy of 20 weeks, in which the other twin was normal. The classification is reviewed. While the physiology and anatomy of these malformations are known, the etiology remains obscure. Theories of etiology may be divided in two groups: that the primary deficiency is a failure of the parts to develop; and the belief that the acardius is due to an abnormal vascular communication with secondary atrophy of the formed parts. The abnormal twin in the case studied was diagnosed by ultrasound prenatally and investigated radiologically post-mortem.

Dickinson CM see **Abadi RV**

Dinwiddie R see **Westaby S**

Dodek A see **Macdonald IL**

Donaldson RA see **Duffy PG**

Douglass KH see **Wong DF**

NLM-DUO-A84 00012

AUTHOR SECTION

Dudgeon DL see **Haller JA Jr**
Dudgeon DL see **Miller D**
Duff J see **Rios B**
Duffy PG, Johnston SR, Donaldson RA: Idiopathic retroperitoneal fibrosis in twins. J Urol 1984 Apr; 131(4):746
We report idiopathic retroperitoneal fibrosis in nonidentical twins. The blood group in both patients was O, Rh(D) positive.
Duffy TP see **Romero R**
Duke JE see **Yates JR**
Dungy CI, Leupp M: Congenital hyperextension of the knees in twins. Clin Pediatr (Phila) 1984 Mar; 23(3):169–72
Bilateral congenital hyperextension of the knees occurring in dizygotic twins is reported. Twin A had the mild form of the disease, genu recurvatum, while twin B had a more severe form of the disease, congenital subluxation. Hyperextension of the knee may occur as a sporadic abnormality, in conjunction with multiple dislocations or as a feature of a syndrome. Early detection and diagnosis are important, especially in the more severe forms of the condition, subluxation and dislocation, which require aggressive immediate intervention to prevent long-term sequelae. Conservative treatment consisting of manipulations and immobilization usually will correct the mild forms of the condition if instituted soon after birth. Prognosis is less favorable with delayed treatment, in the presence of other congenital anomalies, and with genetic syndromes.
Duvoisin RC see **Ward CD**

E

Eaves LJ see **Nance WE**
Edwards WH see **Denholm TA**
Eeg-Olofsson O, Lindskog U: Congenital neurofibromatosis. Multiple subcutaneous tumors with spontaneous regression in twins.
Acta Paediatr Scand 1983 Sep;72(5):779–80
Multiple subcutaneous tumors were found at birth in a pair of identical twins, and the histological diagnosis was neurofibroma. The tumors disappeared within seven months. This disorder must be differentiated from congenital generalized fibromatosis, which usually shows a malignant course.
Ehman RL, Nicholson SF, Machin GA: Prenatal sonographic detection of congenital mesoblastic nephroma in a monozygotic twin pregnancy.
J Ultrasound Med 1983 Dec;2(12):555–7
Eidelman AI see **Kaplan M**
Elder FF, Ferguson JW, Lockhart LH: Identical twins with deletion 16q syndrome: evidence that 16q12.2–q13 is the critical band region.
Hum Genet 1984;67(2):233–6
An interstitial deletion of the long arm of chromosome 16 has been identified in identical twins. These patients are strikingly similar phenotypically to previously reported cases of deletion 16q syndrome but differ chromosomally in that their deletion involves the 16q12.2–q13 rather than the 16q21. We propose that the 16q12.2–q13 is the 'critical region' in the production of this rare but distinctive phenotype.
Eldridge R see **Ward CD**
Elleder M see **Nevsímalová S**
Emder P, Crawford G: Ventricular tachycardia in a neonate secondary to hyperkalaemia.
Aust Paediatr J 1983 Jun;19(2):112–3
We report a preterm infant with ventricular arrhythmias secondary to hyperkalaemia in the first 48 hours of life. The arrhythmias were life threatening and required pharmacological and electrical cardioversion. Aspects of neonatal hyperkalaemia and related arrhythmias are discussed.
Endo M see **Shimizu A**
Enomoto S, Iwasaki Y, Bannai S, Nara Y, Matsuoka A, Aizawa Y, Shibata A: Takayasu's disease in twin sisters. Jpn Heart J 1984 Jan;25(1):147–52
Espinola D see **Wong DF**
Esterly NB see **Gibstine CF**

F

Fagerberg B see **Krotkiewski M**
Fajardo JE see **Wiswell TE**
Faller A see **Barnett AH**
Farid NR see **Balázs C**
Farmer AE see **McGuffin P**
Feig SA see **Champlin RE**
Feigelson EB: Pathological identification in twins.
Hillside J Clin Psychiatry 1983;5(2):221–37
In summary, in addition to the cultural, parental, developmental, and dynamic factors which support mutual identification and/or failure of separation between twins, it is my thesis that the basic early identifications between twins rely heavily on relatively conflict-free perceptual modes (visual, auditory, kinesthetic, etc.) quite different from the conflict-laden drive modes we usually think of when considering identification. Furthermore, identification based on perceptual modes, which are relatively free of conflict in early development, become extremely difficult to analyze, as analytic progress depends on conflict.
Feldberg D see **Dicker D**
Ferguson JW see **Elder FF**
Filkins K, Russo J, Bilinki I, Diamond N, Searle B: Prenatal diagnosis of thrombocytopenia absent radius syndrome using ultrasound and fetoscopy.
Prenat Diagn 1984 Mar–Apr;4(2):139–42
Filly RA see **Nyberg DA**
Fink HW: Kawasaki syndrome in twins [letter]
Pediatr Infect Dis 1984 Jul–Aug;3(4):372–3
Fisher M, Budnitz E: Focal cerebral ischemia and mitral valve prolapse in monozygotic twins.
Arch Intern Med 1983 Nov;143(11):2180–1
Mitral valve prolapse (MVP) is a common frequently inherited cardiac valvular disorder. Ischemic cerebrovascular disease (ICVD) is an apparent complication of MVP. We report the concordance of MVP and ICVD in a pair of monozygotic twins. This occurrence reinforces the concepts that MVP is highly concordant in monozygotic twins and that it can be the cause of familial ICVD.
Flatz G see **Métneki J**
Flatz SD see **Métneki J**
Forrai G, Gordos G: A new acoustic method for the discrimination of monozygotic and dizygotic twins.
Acta Paediatr Hung 1983;24(4):315–22
The close similarity of the voices of consanguineous persons has suggested that there must exist hereditary phonetic parameters. To test this hypothesis, a method for characterizing numerically the similarity or dissimilarity of voices of twins with zygosity previously established by anthropological methods was elaborated. By speech processing and appropriate classification strategy the method has attained the discriminating power of blood-group determination for zygosity. The hereditability of certain physical parameters of the human voice has

also been suggested.

Forrai G, Bánkövi G: A Hungarian twin study on hand clasping, arm folding and tongue curling. Acta Biol Hung 1983;34(1):99-106
A twin study was performed in adult Hungarian monozygotic and dizygotic pairs for hand clasping, arm folding and tongue curling. Genetic background of these traits could not be confirmed, although there appears to be a positive correlation between hand clasping type and handedness.

Forstein SH see **Wiswell TE**

Fraccaro M see **Müller U**

Freeman P, Jackson P, Boyle N: An unusual case of twin pregnancy. Acta Obstet Gynecol Scand 1984; 63(4):367-8

Fried K, Micle S, Goldberg MD: Genetic microcephaly in a pair of monozygous twins. Teratology 1984 Apr; 29(2):177-80
A pair of monozygotic female twins with true primary microcephaly is described. The autosomal-recessive nature of the disease is supported by the following: the twins are concordant for the disease; the parents, themselves normal, are related; the reduced skull dimensions were noted at birth; neurologic problems are absent; the karyotype is normal; the gestation and delivery were normal, without any history of influences capable of inducing microcephaly. A detailed dermatoglyphic study is given.

Friedl W, Propping P: *3H-imipramine binding in* human platelets: a study in normal twins. Psychiatry Res 1984 Apr;11(4):279-85
3H-imipramine binding was determined in freshly prepared intact platelets from 17 monozygotic (MZ) and 15 dizygotic (DZ) twin pairs, all of them male, adult, drug-free, and healthy volunteers. Sixteen males served as controls for determination of intraindividual variation of binding parameters. Both MZ and DZ twin pairs exhibited high intraclass correlations of Bmax values, but DZ twins were nearly as similar as MZ pairs. Interindividual variation of binding parameters is not large enough to reveal a significant genetic control.

Friedman GD see **Odenheimer DJ**

Friedman S see **Neri A**

Fryns JP see **Moerman P**

Fujino T, Gottlieb K, Manchester DK, Park SS, West D, Gurtoo HL, Tarone RE, Gelboin HV: Monoclonal antibody phenotyping of interindividual differences in cytochrome P-450-dependent reactions of single and twin human placenta. Cancer Res 1984 Sep; 44(9):3916-23
Cytochromes P-450 are a family of enzymes responsible for metabolism of drug and xenobiotics, such as carcinogen, and certain physiological compounds, such as steroids and prostaglandins. We prepared a monoclonal antibody (MAb 1-7-1) to a polycyclic hydrocarbon-induced rat cytochrome P-450 that antigenically defines and inhibits a type of cytochrome P-450 responsible for aryl hydrocarbon hydroxylase (AHH) and 7-ethoxycoumarin deethylase (ECD) activity in human placenta. We examined the placentas from single and twin births from mothers who smoked cigarettes and nonsmokers. The MAb 1-7-1 inhibited the smoking-induced AHH activity of essentially the entire population of placentas by 70 to 95%. Thus, up to 95% of the AHH in a population of human placentas is catalyzed by a type of cytochrome P-450 that contains an antigenic site recognized by MAb 1-7-1. A second type of cytochrome P-450, which is insensitive to MAb 1-7-1, is responsible for the ECD activity in the placentas of nonsmokers. In the placentas from smokers, both types of P-450 contribute to ECD activity. Their ratios can be determined by the amount of inhibition by MAb 1-7-1 which ranges from 0 to 70%. The placentas from both dizygotic and dichorionic monozygotic twins show extraordinarily high intrapair concordance for both the absolute amounts of AHH and ECD and their inhibition by MAb 1-7-1 compared with unrelated individuals, indicating that interindividual differences in these parameters of biological activity are not due to random variation or experimental error. Our results show that the amount of activity of antigenically unique types of cytochrome P-450 responsible for different drug and carcinogen reactions can be measured in different individuals by the amount of their inhibition by highly specific monoclonal antibodies. These findings may have general application to studies on the relationship cytochrome P-450 phenotype to population differences in drug and carcinogen biotransformation.

G

Galen RP see **Champlin RE**

Ganda OP, Williamson JR, Soeldner JS, Gleason RE, Kilo C, Kaldany A, Miller JP, Garovoy MR, Carpenter CB: Muscle capillary basement membrane width and its relationship to diabetes mellitus in monozygotic twins. Diabetes 1983 Jun;32(6 Pt 1):549-56
Quadriceps (Q) and gastrocnemius (G) muscle capillary basement membrane width (CBMW) were measured in 18 pairs of monozygotic (MZ) twins. Thirteen of these twin pairs were discordant for insulin-dependent diabetes (IDD) and five pairs were concordant for either IDD (two pairs) or for non-insulin-dependent diabetes (NIDD). In 12 of the 13 nondiabetic (ND) twin mates of IDD, 50 oral glucose tolerance tests performed in the years before or after determination of CBMW revealed mean blood glucose levels in the 36-52 percentile range, compared with normal controls. The mean (+/-SD) age at the onset of IDD in discordant twins was 18.7 +/- 10.1 (range 8-37) yr and the mean duration of discordance at the time of biopsy was 13.6 +/- 8.3 (range 3-32) yr. CBMW data were compared within each twin (Q versus G) and between twin mates and age- and sex-matched controls. Overall, CBMW of IDD twins was greater than that of their ND twin mates. Differences between IDD and ND twins, however, were much more marked in gastrocnemius (1859 +/- 643 versus 1222 +/- 307 A, P less than 0.0003) than in quadriceps (1291 +/- 319 versus 1112 +/- 302 A; P less than 0.04). CBMW in gastrocnemius was significantly thicker than that in the quadriceps of IDD twins (t = 4.55, P less than 0.0008) but not in their ND twin mates (t = 1.15, P less than 0.27). CMBW was significantly thicker in IDD than in their ND twin mates (in quadriceps and/or gastrocnemius) in 10 of the 12 twin pairs.(ABSTRACT TRUNCATED AT 250 WORDS)

Ganesh V see **Apuzzio JJ**

Ganjavian MS see **Akbarnia BA**

Garovoy MR see **Ganda OP**

Garten KJ, Rawlinson KF, Pulliam RP: Sonographic antepartum diagnosis of dicephalus dipus dibrachius: two case reports. W Va Med J 1983 Oct; 79(10):218-20

Gelboin HV see **Fujino T**

NLM-DUO-A84 00014

AUTHOR SECTION

George L see **Mathewson JW**
Gershon ES see **Nurnberger J Jr**
Gershon ES see **Nurnberger JI Jr**
Gibson JB, Martin NG, Oakeshott JG, Rowell DM, Clark P: Lung function in an Australian population: contributions of polygenic factors and the Pi locus to individual differences in lung function in a sample of twins. Ann Hum Biol 1983 Nov-Dec;10(6):547-56
A study of lung function in 203 twin pairs aged 18-34 years living in Sydney detected significant genetic variation in females and males. There was no evidence of family environmental effects in either sex and most of the repeatable variation in females was heritable. However, there was evidence for systematic environmental differences between males affecting lung function so that the heritability was lower in males (about 0.6) than females (about 0.8). An effect of smoking on lung function was detected but accounted for less than 3% of the variance. Lung function in females was greater in the M subtype heterozygotes at the Pi locus than in the M subtype homozygotes or in other Pi phenotypes with low alpha 1-antitrypsin activity. The Pi polymorphism accounted for approximately 9% of the total variance in female lung function. No effect of the Pi locus was found in males.
Gibstine CF, Esterly NB: Lichen planus in monozygotic twins [letter] Arch Dermatol 1984 May;120(5):580
Gilbert EF see **Juberg RC**
Gillberg C: Identical triplets with infantile autism and the fragile-X syndrome. Br J Psychiatry 1983 Sep; 143:256-60
In a continuing twin study of autism in Scandinavia and Finland, moderately mentally retarded triplets fulfilling Rutter's criteria for infantile autism were reported. Judging by physical appearance the triplets were identical. Behaviourally they were extremely similar though one was intellectually slightly better than the other two. All three showed the physical stigmata characteristic of the fragile-X syndrome, in spite of their overall appearance being non-conspicuous. The triplets had between 8 and 12 per cent of fragile-X positive cells and showed a distinct pattern of urinary excretion of substances yielding absorbency at 280 nM. Their mother and sister also had a high count of fragile-X positive cells.
Gillin JC see **Nurnberger J Jr**
Gillin JC see **Nurnberger JI Jr**
Gilmore DW see **Chadwick JM**
Gimelli G see **Müller U**
Gladen HE see **Stewart JR**
Glaser J see **Kaplan M**
Glassberg KI see **Grajewski RS**
Gleason RE see **Ganda OP**
Goddeeris P see **Moerman P**
Golbus MS see **Nyberg DA**
Golbus MS see **Taylor MB**
Goldberg MD see **Fried K**
Goldberg MF see **Kassam G**
Goldman JA see **Dicker D**
Gooi SM see **Woon KY**
Gordos G see **Forrai G**
Gorman WA see **Manning D**
Goto S see **Kigawa J**
Gottesman II, Carey G: Extracting meaning and direction from twin data. Psychiatr Dev 1983 Spring; 1(1):35-50 (74 ref.)
This paper reviews the current status of the twin method as a research tool in psychiatry. It is shown that the common practice of reporting only probandwise concordance rates leaves much of the meaning unextracted from the data, and that by including appropriate estimates of the population risk, the concordance rates can be converted into liability correlation coefficients, which can be assessed within the theoretical framework of multifactorial-threshold-polygenic disorders.
Gottesman II see **McGue M**
Gottesman II see **McGuffin P**
Gottlieb K see **Fujino T**
Goudie BM, Wilkieson C, Goudie RB: A family study of vitiligo patterns. Scott Med J 1983 Oct; 28(4):338-42
The anatomical distribution of vitiligo has been studied in families with evidence of organ-specific autoimmune disease. No examples of similar pattern inheritance were found in first degree relatives in contrast to published reports of similar vitiligo patterns in identical twins. The genetic predisposition to develop vitiligo apparently allows for a diversity of anatomical pattern. A similar mechanism may be responsible for the occurrence of different organ-specific autoimmune diseases in members of the same family.
Goudie RB see **Goudie BM**
Graham JM Jr see **Jung JH**
Grajewski RS, Glassberg KI: The variable effect of posterior urethral valves as illustrated in identical twins. J Urol 1983 Dec;130(6):1188-90
To our knowledge, we report the second instance of posterior urethral valves in identical twin boys. Initial symptoms, age at presentation and radiographic findings were different in each boy, and reflect the varying nature of this congenital anomaly. Although the brothers are identical twins from the same environment with identical Rh and ABO blood groupings and identical HLA haplotypes, developmental differences have been marked.
Grannum P see **Chervenak FA**
Grauaug A see **Yovich JL**
Greenstein JI, McFarland HF, Mingioli ES, McFarlin DE: The lymphoproliferative response to measles virus in twins with multiple sclerosis.
Ann Neurol 1984 Jan;15(1):79-87
The cellular immune response to measles virus, as measured by lymphocyte proliferation in normal individuals, is considerably lower than that to mumps or vaccinia viruses, and stable multiple sclerosis patients do not differ significantly from the norm. The response to these viruses was studied in 28 twin sets both concordant and discordant for multiple sclerosis. Normal responses to mumps and vaccinia viruses occurred throughout. Seven affected twins manifested a persistently elevated response to measles virus, whereas the unaffected twins had a (normal) low response. The differences were unrelated to differences in T cell subsets, unusual kinetics of the response, or differential susceptibility of lymphocytes to the effects of measles virus infection in vitro. The specificity of the response resides in an E+ subpopulation, and the addition of low-responder E+ cells to high-responder E+ cells failed to identify an active low-responder suppressor population. These findings suggest the presence of clonally expanded measles-specific T cell populations in the high responders with multiple sclerosis.
Greer FR, Lane J, Ho M: Elevated serum parathyroid hormone, calcitonin, and 1,25-dihydroxyvitamin D in lactating women nursing twins.
Am J Clin Nutr 1984 Sep;40(3):562-8
The roles of vitamin D, calcitonin, and parathyroid hormone in calcium metabolism during lactation may be more evident in women secreting very large

NLM-DUO-A84 00015

amounts of milk for a number of months, as in mothers nursing twins. We report significant increases in serum concentrations of parathyroid hormone, calcitonin, and 1,25(OH)2 vitamin D in mothers nursing twins compared to mothers nursing single infants. Serum concentrations of calcium actually increased in both groups during lactation. Maternal intakes of calories, calcium, and phosphorus were significantly higher in mothers nursing twins. Thus, mothers nursing twins were able to compensate for higher calcium losses in breast milk by increased dietary intakes of calcium as well as increased serum concentrations of parathyroid hormone, calcitonin, and 1,25(OH)2 vitamin D.

Grumet GW: Identical twins discordant for heroin abuse: case report. J Clin Psychiatry 1983 Dec; 44(12):457-9
A case of monozygotic twins is reviewed in which one twin was a heavy abuser of heroin and other illicit drugs while his co-twin was adamantly opposed to drug abuse. The drug-abusing twin was the first born, had a higher birthweight and took a leadership role, while his twin enjoyed extra care in infancy and was less adventuresome.

(Guild WR), Starzl TE: Landmark perspective: The landmark identical twin case. JAMA 1984 May 18; 251(19):2572-3

(Guild WR), Landmark article Jan 28, 1956: Successful homotransplantation of the human kidney between identical twins. By John P. Merrill, Joseph E. Murray, J. Hartwell Harrison, and Warren R. Guild. JAMA 1984 May 18;251(19):2566-71

Guo BK, Wang GM: Retinoblastoma in twins. Chin Med J [Engl] 1983 Aug;96(8):563-8

Gurling HM: Genetic epidemiology in medicine--recent twin research [editorial] Br Med J [Clin Res] 1984 Jan 7;288(6410):3-5

Gurling HM, Reveley MA, Murray RM: Increased cerebral ventricular volume in monozygotic twins discordant for alcoholism. Lancet 1984 May 5; 1(8384):986-8
21 pairs of monozygotic twins discordant for alcoholism and heavy drinking were examined by computerised tomography. Brain and ventricular volumes were calculated by the use of a semiautomated method with the rater blind to twinship and drinking history. 11 severely dependent alcoholics had larger ventricular volumes and ventricle/brain ratios than did their normal cotwins. These changes correlated best with the length of time the alcoholic twin had been drinking eight centilitres pure alcohol, equivalent to a bottle of wine, a day.

Gurtoo HL see **Fujino T**

Gusberg SB, Deligdisch L: Ovarian dysplasia. A study of identical twins. Cancer 1984 Jul 1;54(1):1-4
The normal, identical twin sisters of patients who had been the subjects of ovarian cancer were subjected to prophylactic oophorectomy after the menopause. The finding of epithelial abnormality suggests a precancerous change similar to other genital epithelial dysplasia.

H

Hada Y see **Takenaka K**

Haddad FS see **Dhib-Jalbut S**

Hadi F see **Singh M**

Hahn BH see **Schroeder JL**

Haller JA Jr, Colombani P, Buck JR, Dudgeon DL, Miller D: Operative management of the Dagsboro Siamese twins. Md State Med J 1983 Jul;32(7):513-5

Haller JA Jr see **Miller D**

Haltia M, Somer H, Palo J, Johnson WG: Neuronal intranuclear inclusion disease in identical twins. Ann Neurol 1984 Apr;15(4):316-21
A pair of female identical twins exhibited slurred speech, nystagmus, and oculogyral spasms starting at age 11. The patients then had episodic rage, extrapyramidal and lower motor neuron abnormalities, and grand mal seizures, but retained largely normal intelligence, until death at age 21. Severe loss of nigral and craniospinal motor neurons was noted postmortem. Round, eosinophilic, autofluorescent inclusion bodies, 3 to 10 microns in diameter, were observed in the nuclei of most nerve cell types of the central and peripheral nervous systems and retina. Ultrastructurally the inclusions appeared as masses of filaments without a limiting membrane, the constituent filaments having a diameter of 8.5 to 9.5 nm. Histochemical results suggested the presence of proteins with a high content of tryptophan. Four similar cases have been reported previously under various designations. We propose the name neuronal intranuclear inclusion disease for the disorder.

Handelsman D see **Martin NG**

Hansen HE, Niebuhr E, Lomas C: Chimeric twins. T.S. and M.R. reexamined. Hum Hered 1984;34(2):127-30
A pair of chimeric twins, T.S. (male) and M.R. (female), were examined. The amounts of 'foreign' blood cells in each twin found on three occasions were compared. The percentages of M.R. cells found in the blood of T.S. in 1977 and in 1982 were similar and about 1/5 of that found in 1970. The amount of T.S.-blood cells found in M.R. was declining slowly from about 31% in 1970 to about 25% in 1982.

Hansen HG see **Heyne K**

Hanson M see **Blake GD**

(Harrison JH) Landmark article Jan 28, 1956: Successful homotransplantation of the human kidney between identical twins. By John P. Merrill, Joseph E. Murray, J. Hartwell Harrison, and Warren R. Guild. JAMA 1984 May 18;251(19):2566-71

(Harrison JH) Starzl TE: Landmark perspective: The landmark identical twin case. JAMA 1984 May 18; 251(19):2572-3

Hartikainen-Sorri AL, Jouppila P: Is routine hospitalization needed in antenatal care of twin pregnancy? J Perinat Med 1984;12(1):31-4
A prospective study was carried out to evaluate the significance and efficacy of routine hospital bed rest in prevention of premature birth and pregnancy complications compared to specialized antenatal care at the outpatient clinic of 73 twin pregnancies. The twin pregnancies were screened in health centers by means of symphysis-fundus measurement, and the diagnosis was confirmed by ultrasound examination at the outpatient clinic. On the average the ultrasonic diagnosis was performed during the 23rd gestational week; at this visit the women were divided into two groups with similar follow-up to the end of the 29th gestational week. At this stage one of the groups was hospitalized unless there had been indications for earlier admission. In the hospital group, the mean for gestational week at delivery was 36.7 (+/- 2.4) and in the outpatient group 37.4 (+/- 1.8) respectively (N.S.). There was no difference in the rate of pregnancy complications between the groups too. No statistical differences in the perinatal mortality (7.1% and 1.1% respectively) or birthweights of the newborns were found, either. Present results do not support the idea of using

NLM-DUO-A84 00016

routine hospital bed rest. It could not be proved to have positive effects on the gestational age, birth weight and perinatal mortality of the newborns, nor to the pregnancy complications. In our opinion early diagnosis of twin pregnancy is of decisive importance and specialized ambulatory follow-up could be employed instead of routine bed rest in antenatal care of twin pregnancy.

Hartsfield JK Jr, Bixler D: Bilateral macrostomia in one of monozygotic twins.
Oral Surg Oral Med Oral Pathol 1984 Jun; 57(6):648–51
This report concerns a pair of monozygotic twins discordant for bilateral symmetrical macrostomia. Laterally placed, symmetrical notches in the vermilion borders of both upper and lower lips were apparent in the affected twin. Since the oral cavity walls develop by a differential growth and merging mechanism, this result suggests a mechanism of tissue breakdown as the cause of macrostomia. Furthermore, discordance in these monozygotic twins minimizes the importance of heredity in this malformation.

Hartung RW, Yiu-Chiu V, Aschenbrener CA: Sonographic diagnosis of cephalothoracopagus in a triplet pregnancy. J Ultrasound Med 1984 Mar; 3(3):139–41

Harvey JP Jr see **Zionts LE**

Hasegawa I see **Takenaka K**

Haviland JM, McGuire TR, Rothbaum PA: A critique of Plomin and Foch's 'A Twin Study of Objectively Assessed Personality in Childhood'.
J Pers Soc Psychol 1983 Sep;45(3):633–40
Plomin and Foch's (1980) study of objectively assessed personality in childhood is critiqued on five points: (a) conceptual validity of the measures, (b) stability of the measures for the population age range, (c) comparability of populations, (d) accuracy of literature review, and (e) appropriate interpretation of broad heritability data. The Plomin and Foch study contains major errors; it is theoretically and methodologically flawed. Their report is especially significant because it is representative of problems critical to the study of the genetic correlates of personality.

Hayden LJ, Koff SA: Vesicoureteral reflux in triplets.
J Urol 1984 Sep;132(3):516–7
During an investigation for urinary tract infections in 3-month-old triplets similar patterns of vesicoureteral reflux were noted. To our knowledge, this is the first report of vesicoureteral reflux in triplets. The patterns of inheritance in vesicoureteral reflux and the need for sibling evaluation are discussed.

Healey T: Identification from radiographs.
Clin Radiol 1983 Sep;34(5):589–92
The identification of a radiograph as having been made from one particular person is an everyday task, usually undertaken by comparing an example with one or more of a previous series. Occasionally, the problem is to compare new views of human remains with radiographs of the same parts taken during life. Examples are reported wherein either procedure would have failed, as no significant differences were found in the bony or soft-tissue landmarks on chest radiographs of two sets of identical twins, aged 17 and 87 years. This may be a widespread phenomenon, not previously recognised from the rarity of twins presenting at the same time for the same examinations. Statements, based upon radiography, as to the identity of patients, must bear the caveat 'provided no identical twin exists'.

Heffron WA, Martin CA, Welsh RJ: Attention deficit disorder in three pairs of monozygotic twins: a case report. J Am Acad Child Psychiatry 1984 May; 23(3):299–301

Helardot P see **de Gamarra E**

Henig E see **Neri A**

Herbert WN see **Koontz WL**

Herbert WW see **Chadwick JM**

Herzlinger D see **Cole GW**

Heydarian K see **Akbarnia BA**

Heyne K, Hof M, Hansen HG: Pigmented naevi after therapy of leukaemia (ALL) in a monozygotic twin [letter] Eur J Pediatr 1984 Apr;142(1):70

Heywood C see **Kagamimori S**

Hildmann W see **Schulz B**

Hillary IB see **Manning D**

Hindmarsh D see **Hsu LK**

Ho M see **Greer FR**

Ho TH see **Woon KY**

Hobbins JC see **Chervenak FA**

Hobbins JC see **Romero R**

Hof M see **Heyne K**

Hoffmann P see **Barnett AH**

Holden C: VA to study twins [news] Science 1984 Mar 16;223(4641):1157

Holder D see **Hsu LK**

Holm NV see **Larsen FS**

Holm NV see **Menné T**

Honeyman MS see **Wyshak G**

Hopp RJ, Bewtra AK, Watt GD, Nair NM, Townley RG: Genetic analysis of allergic disease in twins.
J Allergy Clin Immunol 1984 Feb;73(2):265–70
One hundred seven pairs of twins, sixty-one MZT and forty-six DZT, were investigated for allergic disease by a questionnaire, reaginic antibody levels, bronchial reactivity to inhaled methacholine, and skin test responses. Intrapair correlation coefficients (ri) of measured clinical markers of atopy were determined and a heritability analysis was performed. The intrapair correlation coefficient for serum IgE was 0.82 for MZT and 0.52 for DZT. The methacholine area demonstrated greater correlation in MZT with an ri of 0.67 compared to 0.34 for DZT. The total ISTS had an intrapair correlation coefficient of 0.82 in MZT and 0.46 in DZT. Our analysis demonstrates that methacholine sensitivity, total serum IgE levels, and total skin test scores to be heritable traits and suggests a genetic contribution to their expression.

Hrubec Z, Robinette CD: The study of human twins in medical research. N Engl J Med 1984 Feb 16; 310(7):435–41 (117 ref.)

Hsu LK, Holder D, Hindmarsh D, Phelps C: Bipolar illness preceded by anorexia nervosa in identical twins. J Clin Psychiatry 1984 Jun;45(6):262–6
Concordant bipolar illness in a set of identical twins, preceded in one twin by anorexia nervosa, is described. The literature on monozygotic twins discordant for anorexia nervosa and on the relationship between anorexia nervosa and affective illness is briefly reviewed. It is concluded that familial affective disorders can predispose adolescent females to develop anorexia nervosa.

Hubinont C, Pratola D, Rothschild E, Rodesch F, Schwers J: Dicephalus: unusual case of conjoined twins and its prepartum diagnosis.
Am J Obstet Gynecol 1984 Jul 15;149(6):693–4

Huisman TH see **Nakatsuji T**

Hutton C, Clark F: Polycystic ovarian syndrome in identical twins. Postgrad Med J 1984 Jan; 60(699):64–5
Two 21-year-old female twins are described. They presented simultaneously with hirsutism and oligomenorrhoea. Investigation showed they had

NLM-DUO-A84 00017

polycystic ovaries, they were identical and were not cases of post-pubertal adrenogenital syndrome.

I

Ihle BU, d'Apice A: Renal transplant with great difficulty in proving monozygosity between donor and recipient [letter] Transplantation 1984 Aug; 38(2):199-200

Ince SE see **Ward CD**

Ingardia CJ see **Blake GD**

Iwasaki Y see **Enomoto S**

J

Jackson P see **Freeman P**

James WH: Twins [letter] N Engl J Med 1984 Jul 5;311(1):58

Jarvik LF, Matsuyama SS: Parental stroke: risk factors for multi-infarct dementia? [letter] Lancet 1983 Oct 29;2(8357):1025

Jimerson DC see **Nurnberger JI Jr**

Johnson DE see **Berry SA**

Johnson RE see **Chervenak FA**

Johnson WG see **Haltia M**

Johnston SR see **Duffy PG**

Jones KL, Benirschke K: The developmental pathogenesis of structural defects: the contribution of monozygotic twins. Semin Perinatol 1983 Oct; 7(4):239-43

Joubert M, Stephanov S: Successful removal of a partial Siamese twin with a carbon dioxide laser. S Afr Med J 1983 Nov 26;64(23):913-4
A case of a 'partial Siamese twin' is discussed, and the neurological signs and operative findings are recorded. The operation was performed with the aid of a carbon dioxide laser, which not only facilitated and expedited the procedure but also ensured minimal loss of blood. The wound broke down in part, but complete healing occurred within less than a month. At the time of discharge the baby showed no abnormal neurological signs.

Joubert SM see **Norman RJ**

Jouppila P see **Hartikainen-Sorri AL**

Juberg RC, Christopher CR, Alvira MM, Gilbert EF: Clinicopathologic conference: dup(10q),del(12p) in one abnormal, dizygotic twin infant of a t(10;12)(q22.1;p13.3) mother. Am J Med Genet 1984 Jun; 18(2):201-13

Jung JH, Graham JM Jr, Schultz N, Smith DW: Congenital hydranencephaly/porencephaly due to vascular disruption in monozygotic twins. Pediatrics 1984 Apr;73(4):467-9
Monozygotic twinning has been associated with a variety of vascular disruptive defects including congenital hydranencephaly/porencephaly. Data involving 24 cases of congenital hydranencephaly/porencephaly associated with twinning are reported. In these cases, the finding of a preponderance of monozygotic twins and the common association of a deceased co-twin support the hypothesis of a vascular disruptive etiology. These defects are presumed to be secondary to embolic phenomena or thromboplastin release from the deceased co-twin to the survivor via the vascular interconnections of a conjoined monochorionic placenta. In all cases of hydranencephaly/porencephaly, a careful examination of the placenta and membranes for evidence of a deceased co-twin is warranted prior to providing recurrence risk counseling.

K

Kaganimori S, Robson JM, Heywood C, Cotes JE: Genetic and environmental determinants of the cardio-respiratory response to submaximal exercise--a six-year follow-up study of twins. Ann Hum Biol 1984 Jan-Feb;11(1):29-38
The fat-free mass and the ventilatory and cardiac frequency responses to submaximal exercise have been assessed longitudinally over six years in a total of 65 identical and non-identical boy and girl twin pairs. Exercise ventilation at rates of work below the anaerobic threshold was independent of the genetic and environmental factors which were investigated. The anaerobic threshold increased with age. The fat-free mass and the exercise cardiac frequency were subject to both genetic and environmental control with the genetic component predominating initially. The subsequent environmental component was larger for non-identical than for identical twin pairs and for boys than for girls. It is concluded that in identical twin boys by the time they reach adolescence the performance during submaximal exercise has a material environmental component. There appears to be interaction between the genetic and environmental components.

Kaldany A see **Ganda OP**

Kaneko K see **Sato T**

Kaplan M, Glaser J, Eidelman AI: Early cardiac evaluation of thoracically conjoined twins. Cardiology 1983;70(3):152-5
Thoracopagus conjoined twins were delivered at 31 weeks gestation by cesarean section. Although there was a single heart, the possibility of salvaging one twin only was contemplated. Echocardiography revealed an A-V canal and suspected transposition of the great vessels. To determine the possibility of surgery, cardiac catheterization was performed to rule out other congenital cardiac malformations incompatible with life, and also to delineate the exact anatomy of the great vessels of the heart. Unfortunately, complex congenital abnormalities were found, thus excluding the possibility of surgery. Newly delivered conjoined twins should be regarded as potentially correctable and should be promptly investigated while they are yet in good clinical condition.

Kaprio J see **Partinen M**

Karplus M see **Siplovich L**

Kassam G, Chen AT, Goldberg MF, Trusler S, Oakley GP Jr: Prenatal diagnosis of pericentric inversion of chromosome No. 17 in a twin pregnancy. Prenat Diagn 1984 May-Jun;4(3):213-6
Although prenatal genetic diagnosis can usually provide prospective parents with information as to whether their fetus is affected with certain genetic conditions, the presence of twins and the uncertainty about the phenotype of some chromosome variations pose a major dilemma and make genetic counseling very difficult. Here, a case report of an unusual chromosome aberration (pericentric inversion of chromosome no. 17) in a twin pregnancy which was originally suspected to be monoamniotic but later proved to have two sacs was presented.

Kastally R see **de Verneuil H**

Kawakami Y, Shida A, Yoshikawa T, Yamamoto H: Genetic and environmental influence on inspiratory resistive load detection. Respiration 1984; 45(2):100-10
To differentiate genetic factors from environmental forces in determining threshold for resistance load

NLM-DUO-A84 00018

detection (RLD), 62 healthy adolescent twins (mean age = 16 years) and 74 healthy adult twins (mean age = 34 years) were studied by the standard psychophysical technique. The zygosity was determined by blood groups, finger prints, and physical appearances. Mean values for age, height, weight, pulmonary functions (FVC, FEV1, FEV1/FVC, Raw, and FRC) were not different between monozygotic (MZ) and dizygotic (DZ) pairs either in adolescent or adult twins. Threshold for RLD was analyzed in terms of added resistance divided by airway resistance plus apparatus resistance (Weber fraction) and mouth pressure (P) at the threshold. Both Weber fraction and P were equivalent between MZ and DZ either in adolescent or adult twins. In adolescence, within-pair variance for P was significantly greater in DZ than in MZ, but within-pair variances for Weber fraction were similar between MZ and DZ, the former indicating that threshold for RLD is predominantly influenced by genetic factors. In adults, within-pair variances for Weber fraction and P were not different between MZ and DZ, indicating that environmental factors predominate over genetic factors. When adolescent and adult twins were lumped together, mean values for Weber fraction and P were not different between male and female. Relationship between P and age was significant both in male and female. P (male) = 0.281 + 0.013 X age (years) +/- SD 0.36 cm H2O, and P (female) = 0.235 + 0.013 X age (years) +/- 0.48 cm H2O. These results indicate that the threshold for RLD is influenced predominantly by genetic factors in adolescence, but environmental factors predominate in the adult. Although sex difference is not clear, P at the threshold increases with age in both sexes.

Kawakami Y, Yamamoto H, Yoshikawa T, Shida A: Chemical and behavioral control of breathing in adult twins. Am Rev Respir Dis 1984 May; 129(5):703-7

Whether genetic influence on chemical and behavioral control of breathing is still present in adulthood was examined in 28 pairs of monozygotic (mean age, 40 +/- SD 9.9 yr) and 10 dizygotic (35 +/- 9.3 yr) twins. Mean values for hypoxic and hypercapnic ventilatory responses, threshold for perceiving added inspiratory resistance, and respiratory patterns were not different between monozygotic and dizygotic twins. However, within-pair variance ratios (those in monozygotic twins being denominators) for hypoxic response (4.08, p less than 0.005), hypercapnic response (4.89, p less than 0.005), respiratory frequency during air breathing (3.96, p less than 0.005), inspiratory time during air breathing (5.47, p less than 0.005), and inspiratory time during hypoxia (9.08, p less than 0.005) were significantly larger than 1. Within-pair variances for threshold for resistive load perception and respiratory pattern during hypercapnia were equivalent between the 2 groups. These results indicate that ventilatory responses to hypoxia and hypercapnia and respiratory patterns while breathing air include genetically determined factors, whereas perception threshold for added resistance and respiratory patterns during hypercapnia are influenced predominantly by environmental force in adulthood.

Kayode Y see **Nnatu S**

Keilacker H see **Schulz B**

Keith D see **Newton W**

Keith L see **Newton W**

Kendler KS: Overview: a current perspective on twin studies of schizophrenia. Am J Psychiatry 1983 Nov; 140(11):1413-25 (88 ref.)

The author reviews the results of twin studies of schizophrenia from the perspective of recent advances in our understanding of the twin method and of the transmission of schizophrenia. The evidence suggests that twin studies of schizophrenia are not likely to be substantially biased by the greater similarity in social environment of identical versus fraternal twins. Raw concordance figures from twin studies of schizophrenia are quite variable. When models to estimate the etiologic importance of genetic factors are applied to these figures, the results from all studies are similar. According to these models, genetic factors are as etiologically important in schizophrenia as in such medical conditions as diabetes and hypertension. Twin studies of schizophrenia probably provide a valid measure of the major etiologic role genetic factors play in schizophrenia.

Kendler KS, Robinette CD: Schizophrenia in the National Academy of Sciences-National Research Council Twin Registry: a 16-year update. Am J Psychiatry 1983 Dec;140(12):1551-63

The authors present a 16-year update on schizophrenia in the National Academy of Sciences-National Research Council (NAS-NRC) Twin Registry. As of October 1981, a recorded diagnosis of schizophrenia was equally common in monozygotic and dizygotic twins. However, probandwise concordance for schizophrenia was significantly greater in monozygotic (30.9%) than in dizygotic (6.5%) twins. Biases in zygosity determination, diagnosis, or ascertainment could not plausibly explain these results. Correction for selection effects in construction of the registry produced concordance rates for schizophrenia approaching those found in previous studies. According to registry data, genetic factors appear at least as important in the etiology of schizophrenia as in several common medical conditions, including diabetes and hypertension. Results from the NAS-NRC Twin Registry support the etiologic importance of genetic factors in schizophrenia.

Keret D, Bar-Maor JA, Reis DN: The Ale-Calo syndrome in monozygotic twins associated with bilateral cryptorchidism--case report. Z Kinderchir 1984 Apr;39(2):145-6

A case report of identical male twins with the clinical and radiological features of the rare Ale - Calo or M.E.M.R. (Multiple Exostoses - Mental Retardation) or Langer-Giedion's syndrome - is presented. The additional finding of bilateral cryptorchidism in our case is also very rare in twins, and has hitherto not been described in association with the Ale - Calo syndrome. Differential diagnosis is reviewed briefly.

Khare DA see **Raghavan KR**

Khuffash FA, Barakat MH, Majeed HA, White AG, Beseda AJ: Coeliac disease in monozygotic twin girls. Synchronous presentation. Gut 1984 Sep; 25(9):1009-12

A pair of monozygotic twin girls with coeliac disease is reported. The diagnosis was made on clinical and biochemical evidence of malabsorption, characteristic histological findings, and clinical, biochemical, and histological response to gluten elimination. Monozygosity was established on finding a single placenta at birth, exact similarity of physical appearance, similar blood group, and histocompatibility antigens, and negative reaction in mixed lymphocyte culture. This is one of six well documented cases of coeliac disease in monozygotic twins and may throw light on the importance of

genetic and environmental factors in the causation and expression of the disease.

Kigawa J, Goto S, Narita K, Aoki S: Sinusoidal fetal heart rate pattern on simultaneous nonstress test of a monoamniotic twin.
Asia Oceania J Obstet Gynaecol 1983 Sep;9(3):284–8

Kilo C see **Barnett AH**

Kilo C see **Ganda OP**

King MC see **Odenheimer DJ**

Kirkpatrick SE see **Mathewson JW**

Kish LS, Steck WD: Mixed connective tissue disease in identical twins. A sclerodermoid variant with concurrent psoriasis. Cleve Clin Q 1983 Summer; 50(2):205–7

Kissel P see **Allen N**

Knox EG, Marshall T, Barling R: Leukaemia and childhood cancer in twins.
J Epidemiol Community Health 1984 Mar;38(1):12–6
Data from the United Kingdom on childhood leukaemia and childhood cancer in twins and from the United States on leukaemia in twins are analysed by a new method. The method distinguishes determinants occurring before the stage of pregnancy corresponding with the cleavage of MZ pairs, from determinants occurring after this point. It derives estimates of the frequencies of each class of determinant. Different aetiological models are characterised by particular combinations of frequencies, and can thus be identified. The results of the analysis suggest that the major determinants of childhood leukaemia, and possibly of the solid cancers as well, operate before the time of cleavage. They operate either on the early zygote or its component germ cells. These early determinants are not, however, sufficient causes and require combination with postcleavage determinants, which subsequently occur in about a quarter of all children, before leukaemia can ensue.

Knuppel RA, Shah DM, Rattan PK, O'Brien WF, Lerner A: Rhesus isoimmunization in twin gestation. Am J Obstet Gynecol 1984 Sep 15;150(2):136–42
The incidence of Rh isoimmunized twin gestation is extremely low. There are several perinatal risks inherent to twinning. Rhesus isoimmunization further increases hazards of such a compromised gestation. This paper reports three cases of rhesus isoimmunization in twin gestation, discusses the selective problems of such pregnancies, and reviews the pertinent literature.

Knuppel RA see **Blake GD**

Koff SA see **Hayden LJ**

Koller DW see **Wong DF**

Konuma S see **Sato T**

Koontz WL, Herbert WN, Seeds JW, Cefalo RC: Ultrasonography in the antepartum diagnosis of conjoined twins. A report of two cases.
J Reprod Med 1983 Sep;28(9):627–30
The advent of new and effective methods for the neonatal evaluation and treatment of conjoined twins has greatly increased the importance of prenatal diagnosis of this complication. Ultrasonography has become the method used most commonly to diagnose and evaluate multiple pregnancies. All ultrasonographers should be familiar with the signs associated with conjoined twins. We treated two patients in whom the antenatal diagnosis of conjoined twins was made by ultrasonography alone. One is the first reported case of the antenatal ultrasonographic diagnosis of conjoined twins in different presentations. The findings associated with conjoined twins are: (1) lack of a separating membrane, (2) inability to separate the fetal bodies, (3) presence of fetal anomalies, (4) identification of more than three vessels in a single umbilical cord, and (5) sonographic detection of any of the classic radiologic signs.

Koskenvuo M see **Partinen M**

Kott I see **Winkler H**

Kozma L see **Balázs C**

Kramer AA: Re: 'Genetic variance of blood pressure levels in infant twins' [letter] Am J Epidemiol 1984 Apr;119(4):651–2

Kramer AA see **Nance WE**

Krotkiewski M, Fagerberg B, Björntorp P, Terenius L: Endorphines in genetic human obesity.
Int J Obes 1983;7(6):597–8

L

Lake M see **Blake GD**

Landau I see **Apuzzio JJ**

Lane J see **Greer FR**

Langinvainio H see **Partinen M**

Larsen FS, Holm NV: Evaluation of an identification method of twin pairs based on the Danish national identification number system. Dan Med Bull 1983 Nov;30(6):424–7

Larsson L, Orlander J: Skeletal muscle morphology, metabolism and function in smokers and non-smokers. A study on smoking-discordant monozygous twins. Acta Physiol Scand 1984 Mar; 120(3):343–52
Differences in skeletal muscle characteristics between smokers and non-smokers have been demonstrated in a previous study (Orlander , J. et al. 1979, Acta Physiol Scand 107:39–46). In order to decide whether these differences had a genetical background, six pairs of smoking-discordant monozygous twins were studied with respect to muscle (vastus lateralis) morphology, metabolism and function. The percentage type I fibres was lower in the smokers, who also had smaller diameters of this fibre type. Cytochrome oxidase activity was decreased in the smokers. No differences were seen for other enzymes of energy metabolism, capillary density, isometric or dynamic strength, or short-term muscular endurance. The non-smokers tended to be more physically active. In four ex-smoker/non-smoker pairs, no significant differences were found for the investigated parameters. It was concluded, that the difference in fibre type distribution is not due to a hereditary predisposition to take up smoking. Furthermore, the small difference in physical activity level is an unlikely cause. Thus, smoking per se appears to be the most plausible explanation for the difference in fibre type distribution and associated muscle characteristics. No definitive conclusion regarding the reversibility of the smoking-related differences can be drawn from the present results.

Larsson S see **Mårtensson G**

Lascaratos JG see **Pentogalos GE**

Lauweryns JM see **Moerman P**

Lavin JP Jr see **Rayburn WF**

Lawrence D see **Nurnberger JI Jr**

Lebeck LK see **Lee CL**

Lederhandler M see **Wongmongkolrit T**

Lee CL, Lebeck LK: Estimating dizygotic/monozygotic ratio of twins by general formula. Am J Clin Pathol 1984 May;81(5):654–9
Eight general formulas are presented for estimation of the dizygotic/monozygotic ratio (DMR) for twins of the same sex and blood groups. The derivation of these formulas and example applications for each are given in plain English without complex statistical

NLM-DUO-A84 00020

symbols. The formulas cover all blood group systems including multiallele systems with silent gene(s) as well as the HLA system. Predetermined DMR values for commonly used genetic markers (except HLA) are provided for U.S. white and black persons.

Lee YS see **Chi JG**

Lerner A see **Knuppel RA**

Leroux M see **Zamel N**

Leupp M see **Dungy CI**

Li FP see **Anderson KC**

Lindskog U see **Eeg-Olofsson O**

Litt RA, Nielsen IL: Class II, division 2 malocclusion. To extract--or not extract? Angle Orthod 1984 Apr; 54(2):123-38

Identical 13-year-old twin boys with Class II, division 2 malocclusions are treated at the same time, one with a full complement of teeth and the other with extraction of the first bicuspids.

Lockhart LH see **Elder FF**

Loi M see **Cianchetti C**

Lomas C see **Hansen HE**

Lomas MS see **Abadi RV**

Lunay G see **Yovich JL**

Lundström A: Nature versus nurture in dento-facial variation. Eur J Orthod 1984 May;6(2):77-91

M

Macdonald IL, McMurtry TJ, Dodek A: Atrial septal defect in adult identical twins: a variation in theme. Clin Cardiol 1983 Oct;6(10):507-10

The diagnosis of atrial septal defect was established in monozygotic twin females at age 63. Each patient mimicked a different acquired heart disease. One twin had congestive heart failure and atrial fibrillation and was diagnosed as having rheumatic mitral insufficiency. The other twin had atypical chest pain and systemic hypertension and was thought to have arteriosclerotic heart disease. In each case the correct diagnosis was made at cardiac catheterization. Although the same basic congenital heart lesion was present in both patients, the symptoms and findings differed. Symptomatic improvement was achieved by different therapeutic modalities. One patient had open heart surgery, while the other twin improved with medical therapy.

McFarland HF see **Greenstein JI**

McFarlin DE see **Greenstein JI**

McFarlin DE see **Xu XH**

McGue M, Gottesman II, Rao DC: The transmission of schizophrenia under a multifactorial threshold model. Am J Hum Genet 1983 Nov;35(6):1161-78

Family studies of schizophrenia have reported elevated rates of both definite and definite-plus-probable schizophrenia among the relatives of definite schizophrenics. These elevated rates imply a strong association between the two forms of diagnosis and suggest some form of familial transmission. Here we have used recently developed maximum likelihood methods to investigate this association and characterize the nature of the familial transmission. Results indicated that although the two forms of diagnosis were strongly related, they could not be considered alternative manifestations of a single liability distribution. Heritability estimates for either form of diagnosis were comparable (h2 = .668 +/- .052 and c2 = .191 +/- .038 for definite while h2 = .628 +/- .073 and c2 = .236 +/- .106 for definite-plus-probable), although cultural transmission (i.e., c2) was statistically significant only for definite-plus-probable. For either form of diagnosis, residual twin resemblance was statistically significant and could not be explained in terms of the effects of genetic dominance. These results are comparable to those of an earlier analysis based upon a similar data set. Finally, the statistical correction used to adjust for between-study heterogeneity in morbidity risk figures did not noticeably alter the parameter estimates.

McGuffin P, Farmer AE, Gottesman II, Murray RM, Reveley AM: Twin concordance for operationally defined schizophrenia. Confirmation of familiality and heritability. Arch Gen Psychiatry 1984 Jun; 41(6):541-5

Six sets of operational criteria for diagnosing schizophrenia were applied to a systematically ascertained twin series by raters who were blind to zygosity and to the psychiatric status of the co-twin. Assuming a multifactorial/threshold model of transmission, twin correlations in liability and, where possible, approximate broad heritabilities were calculated for each criterion. All definitions resulted in significant monozygotic twin correlations. The highest heritabilities (of approximately 0.8) were given by the Research Diagnostic Criteria and by the categories 'probable' plus 'definite' schizophrenia according to the criteria of Feighner et al. In contrast, Schneider's first-rank symptoms defined a form of schizophrenia with a heritability of 0 and, together with the criteria of Carpenter et al and Taylor et al, proved to be excessively restrictive, identifying fewer than half of the probands as schizophrenic.

McGuire TR see **Haviland JM**

Machin GA see **Ehman RL**

McKay M, Clarren SK, Zorn R: Isolated tibial hemimelia in sibs: an autosomal-recessive disorder? Am J Med Genet 1984 Mar;17(3):603-7

Isolated tibial hemimelia is generally considered to occur sporadically. We report on isolated tibial hemimelia in two sibs born to phenotypically normal parents and review a similar case from the literature. These cases suggest autosomal-recessive inheritance. Whether isolated tibial hemimelia represents a discrete syndrome or an expression of a disorder with wider phenotypic variability remains unclear.

McMurtry TJ see **Macdonald IL**

Macri J see **Chatterjee MS**

Magnus P: Causes of variation in birth weight: a study of offspring of twins. Clin Genet 1984 Jan; 25(1):15-24

In an effort to explain the causes of variation in birth weight within and between families, birth weights of 13,970 sons and daughters of monozygotic (MZ) and dizygotic (DZ) twins were analysed. The sample included birth weights of halfsibs and cousins related either through females or males, permitting the distinction between maternal and fetal genetic effects. Models of genetic and environmental variances were fitted to mean squares from analysis of variance. The results indicate that more than 50% of the total variation in birth weight is caused by variation in fetal genes, and that less than 20% is caused by variation in maternal genes. The remaining variance (20-30%) could be explained by random environmental effects. No certain effects were found of family-specific environment or of interactions between fetal and maternal genes.

Magnus P, Berg K, Nance WE: Predicting zygosity in Norwegian twin pairs born 1915-1960. Clin Genet 1983 Aug;24(2):103-12

Present addresses of 12,752 like-sexed twin pairs born in the period 1915-1960 were identified. A questionnaire, concerning the similarity of pair members, was sent to all individuals. Responses were

obtained from 83.7% of the subjects. The zygosity of 207 pairs was established by examination of genetic markers. By using discriminant analysis on the responses from this subgroup, functions were obtained for prediction of zygosity from questionnaire data. It was estimated that 2.4% of the pairs would be misclassified if the questionnaire responses from both pair members were used, and 3.9% if only the response from one of the twins was used. Accordingly, zygosity could be predicted with satisfactory reliability also for twin pairs where only one of the twins had responded. The predicted percentage of monozygotic (MZ) pairs among pairs where one or both twins had responded, was 39.4 (4,402/11,175). The percentage of MZ pairs was significantly lower (34.5) in death-discordant pairs than in pairs in which both twins were alive (39.6). The zygosity questionnaire data are sufficient to adequately score twin pairs for zygosity in the great majority of cases.

Maharaj C see **Norman RJ**

Maier N see **Müller U**

Majeed HA see **Khuffash FA**

Manchester DK see **Fujino T**

Manconi PE see **Cianchetti C**

Manning D, Gorman WA, Hillary IB: Neonatal echovirus type 17 infection in twins.
Ir J Med Sci 1983 Aug;152(8):316-7

Manske PR: Cleft hand and central polydactyly in identical twins: a case report. J Hand Surg [Am] 1983 Nov;8(6):906-8
Four hands of a pair of identical twins demonstrated manifestations of both cleft hand deformity and central polydactyly, supporting the concept that a common etiological mechanism is involved in the development of these anomalies.

Marchesi L see **Cainelli T**

Marchetto DJ see **Anderson KC**

Mares AJ see **Siplovich L**

Marin-Padilla M see **Denholm TA**

Marivate M see **Norman RJ**

Maroteaux P see **Serville F**

Marrosu MG see **Cianchetti C**

Marshall J see **Schon F**

Marshall T see **Knox EG**

Mårtensson G, Larsson S, Zettergren L: Malignant mesothelioma in two pairs of siblings: is there a hereditary predisposing factor? Eur J Respir Dis 1984 Apr;65(3):179-84
Two pairs of siblings with malignant pleural mesothelioma are reported. One sister and brother experienced slight household asbestos exposure during childhood. Two identical-twin brothers were occupationally exposed to asbestos for only 8 years. The occurrence of this rare neoplasm in 2 pairs of siblings indicates that a hereditary predisposing factor may exist.

Martin CA see **Heffron WA**

Martin NG, Olsen ME, Theile H, El Beaini JL, Handelsman D, Bhatnagar AS: Pituitary-ovarian function in mothers who have had two sets of dizygotic twins. Fertil Steril 1984 Jun;41(6):878-80
Serum gonadotropin and estradiol levels were measured in 14 women with regular menses during the early and midfollicular phases. Early follicular follicle-stimulating hormone and, to a lesser extent, luteinizing hormone levels were significantly higher in a group of eight women who had had at least one set of dizygotic twins (six of whom had had two sets) than in a control group of six women with no dizygotic twins. Estradiol levels also tended to be higher in mothers of twins, particularly in the midfollicular phase. The two groups of women did not differ in age, height, weight, or parity.

Martin NG, Rowell DM, Whitfield JB: Do the MN and Jk systems influence environmental variability in serum lipid levels? Clin Genet 1983 Jul;24(1):1-14
Significant heterogeneity in the distribution of within pair variances of serum total cholesterol, HDL cholesterol, non HDL cholesterol and triglyceride levels has been found in one or both of two samples of MZ twins. We have found some support for the observation of Magnus et al. (1981) that M- pairs have greater environmental variability in cholesterol levels than M+ pairs and weaker evidence that Jka+ pairs are more variable than Jka- pairs. However, these effects appear to be more striking on triglyceride levels. The low power of the variance ratio test is advanced as a possible reason for the inconsistencies in these findings.

Martin NG see **Gibson JB**

Martin NG see **Whitfield JB**

Mathewson JW, Waldman JD, George L, Kirkpatrick SE, Turner SW, Pappelbaum SJ: Shared coronary arteries and coronary venous drainage in thoracopagus twins. J Am Coll Cardiol 1984 Apr; 3(4):1019-25
A pair of type B thoracopagus twins with complex cyanotic heart disease had shared coronary arteries and coronary venous drainage. Surgical separation was not attempted and the twins died at 10.5 months of age. Antemortem angiography demonstrated that Twin A's right coronary artery supplied Twin B's diaphragmatic and anterior ventricular myocardial free wall. A midline communication existed between each twin's right atrium at a common coronary sinus. The crossing coronary artery coursed alongside this connection and was visualized echocardiographically. At postmortem examination, the great cardiac vein of Twin A drained into the orifice of the common coronary sinus on Twin B's side of the midline. In five of six previously reported cases, the children died at attempted separation shortly after ligation of the interatrial communication. This may have been because of occlusion of a coronary artery or acute obstruction of a coronary vein. Consideration of separation of type B thoracopagus twins requires anatomic delineation of the coronary arteries and veins.

Matsuoka A see **Enomoto S**

Matsuyama SS see **Jarvik LF**

Mattei JF, Aymé S: Syndrome of polydactyly, cleft lip, lingual hamartomas, renal hypoplasia, hearing loss, and psychomotor retardation: variant of the Mohr syndrome or a new syndrome?
J Med Genet 1983 Dec;20(6):433-5
Three sibs, the proband and two monozygotic twins, have a condition including mental retardation, postnatal somatic retardation, preaxial polydactyly of the feet, bifid third metacarpal, median cleft lip, fatty hamartomas on the dorsum of the tongue, conductive hearing loss, and unilateral or bilateral renal agenesis. This probably autosomal recessive syndrome could be a further example of the condition described by Váradi et al or a variant of the Mohr syndrome.

Matton MT see ***Van Staey M***

Menné T, Holm NV: Hand eczema in nickel-sensitive female twins. Genetic predisposition and environmental factors. Contact Dermatitis 1983 Jul; 9(4):289-96
The Danish Twin Register represents a population-based twin sample where the twins enter the Register independently of disease. All female twins born between 1906-30 and available in the Register in January 1978 were sent a questionnaire

NLM-DUO-A84 00022

concerning possible nickel sensitivity. Among 746 pairs living in the eastern part of Denmark, 129 twins from 115 pairs had a possible nickel allergy. Through a subsequent personal visit and, in most cases, patch testing, 34 monozygotic probands from 30 pairs and 45 dizygotic probands from 41 pairs were considered to have a verified nickel sensitivity and fulfilled the restriction criteria for the present study. The prevalence of present or previous hand eczema in both the monozygotic and the dizygotic probands was 41% (95% confidence limits: 30–52%). In 15 of the 32 with hand eczema, this was in the form of a relapsing pompholyx. Analysis of the monozygotic pairs showed that the risk of developing hand eczema in the co-twins seemed independent of whether the proband had nickel allergy and hand eczema or nickel allergy alone. Furthermore, it was found that the number of affected co-twins was comparable with the background population. Thus the association between nickel allergy and hand eczema is probably not due to a common genetic predisposition. Environmental factors seem decisive.

(Merrill JP) Landmark article Jan 28, 1956: Successful homotransplantation of the human kidney between identical twins. By John P. Merrill, Joseph E. Murray, J. Hartwell Harrison, and Warren R. Guild. JAMA 1984 May 18;251(19):2566–71

(Merrill JP) Starzl TE: Landmark perspective: The landmark identical twin case. JAMA 1984 May 18; 251(19):2572–3

Merwin MC, Wright J: Lateral cephalothoracopagus: a case report. Teratology 1984 Apr;29(2):181–4
A case of lateral cephalothoracopagus with posterior auricles is presented and compared with similar cases previously reported. This case is the first, to our knowledge, which exhibits both unequivocal lateral juncture of the faces and posterior auricles. Thus, it may represent a pattern of juncture intermediate between janiceps and lateral cephalothoracopagus.

Métneki J, Czeizel A, Flatz SD, Flatz G: A study of lactose absorption capacity in twins. Hum Genet 1984;67(3):296–300
Lactose absorption capacity was determined by lactose tolerance tests with breath hydrogen determination in 102 healthy, adult, Hungarian pairs of twins in order to test monogenic Mendelian inheritance of the absorptive lactase phenotypes, lactose absorber and lactose malabsorber. Of the total, 52 pairs were monozygous (MZ) and 50 dizygous (DZ) twins of identical sex. All MZ twins were concordant with respect to lactase phenotype. Among DZ twins, the distribution of lactase phenotypes was in agreement with Hardy-Weinberg expectations derived from the frequencies of the hypolactasia gene in DZ and MZ twins, and in the general Budapest population. In the second part of the study, three commonly used methods of lactose tolerance testing, the blood glucose, the blood galactose, and the breath hydrogen tests, were compared in 49 pairs of twins concordant for lactase phenotype. Blood galactose concentration showed the greatest and only significant difference between the intrapair correlation coefficients of MZ and DZ, and no overlap between lactose absorbers and lactose malabsorbers. The intrapair correlation coefficients of peak breath hydrogen concentration in MZ and DZ twins did not significantly differ from zero, but the resolution of lactase phenotypes was satisfactory. Differences in glucose absorption and concentration in lactose absorbers and malobsorbers overlapped considerably, and among lactose absorbers correlation coefficients in DZ were higher than in MZ twins. In MZ and DZ twins, the difference in concordance and constancy of lactose intolerance symptoms was not significant.

Micle S see **Fried K**

Miller D, Colombani P, Buck JR, Dudgeon DL, Haller JA Jr: New techniques in the diagnosis and operative management of Siamese twins. J Pediatr Surg 1983 Aug;18(4):373–6
New techniques of 2-D sonography and radionucleotide Disofenin scanning allowed noninvasive evaluation of thoracoomphalopagus Siamese twins and successful separation at four days of age. Twin girls joined at the lower sternum and upper abdomen and weighing 15 lbs, were transferred at five hours of age after caesarian-section delivery. Scout films revealed high intestinal obstruction in twin A. 2-D sonography showed separate and normal hearts with different rates and attached pericardial sacs. Labeled Disofenin given intravenously to twin A was excreted exclusively in her gallbladder and bile ducts; vice versa for twin B. Because operation was necessary to correct jejunal atresia in twin A, further growth and development was not an option and the parents agreed to total correction. Sternal and pericardial separation and division of common midline-liver was followed by primary diaphragmatic defect repair and Dacron-cloth fascial reconstruction to upper abdominal wall and complete soft-tissue and skin closure in a ten-hour operation. Segmental jejunal resection and anastomosis with gastrostomy was added in baby A. The new tests greatly simplified definition of the anatomical relationships and implemented rapid correction in these newborn conjoint twins.

Miller D see **Haller JA Jr**

Miller JP see **Barnett AH**

Miller JP see **Ganda OP**

Miller M see **Daiger SP**

Mingioli ES see **Greenstein JI**

Miodovnik M see **Rayburn WF**

Moerman P, Fryns JP, Goddeeris P, Lauweryns JM, Van Assche A: Aberrant twinning (diprosopus) associated with anencephaly. Clin Genet 1983 Oct; 24(4):252–6
A case of Monocephalus diprosopus, associated with craniorachischisis and duplication of most of the foregut derivates is presented. The major part of the cardiovascular system remained single but the heart exhibited severe defects, including a complete persistent atrioventricular canal, transposition of the great arteries and atresia of the pulmonary valve. This report further supports the hypothesis that certain-types of incomplete twinning and neural tube defects may be caused by a single teratogenic mechanism.

Mohd KN: Darier's disease in twins. Int J Dermatol 1984 Jun;23(5):339–40

Moriette G see **de Gamarra E**

Mortimer G see **Yates JR**

Moshirpur J see **Abramson A**

Mulcahy MT see **Yovich JL**

Müller U, Maier N, Gimelli G, Fraccaro M: Y-dependent polypeptides identified by two-dimensional gel electrophoresis of monozygotic X0 and XY fibroblasts. Hum Genet 1984; 67(1):108–10
Two-dimensional gel electrophoresis analysis of X0 and XY fibroblasts from a monozygotic twin pair reveals two Y-dependent polypeptides. The polypeptides have molecular weights and isoelectric points of 38,000/6.3 and 30,000/5.4 and are designated as Y-38 and Y-30.

NLM-DUO-A84 00023

AUTHOR SECTION

Murat I see **de Gamarra E**

(Murray JE) Starzl TE: Landmark perspective: The landmark identical twin case. JAMA 1984 May 18; 251(19):2572-3

(Murray JE) Landmark article Jan 28, 1956: Successful homotransplantation of the human kidney between identical twins. By John P. Merrill, Joseph E. Murray, J. Hartwell Harrison, and Warren R. Guild. JAMA 1984 May 18;251(19):2566-71

Murray RM see **Gurling HM**

Murray RM see **McGuffin P**

Murray RM see **Reveley AM**

Myers RH see **Sudarsky L**

N

Nadi NS see **Nurnberger JI Jr**

Nair NM see **Hopp RJ**

Nakatsuji T, Wilson JB, Huisman TH: Hb Cordele alpha(2)47 (CE5)Asp----Ala beta 2. A mildly unstable variant observed in black twins. Hemoglobin 1984;8(1):37-46

Hb Cordele, which has an Asp----Ala substitution at position 47 (CE5) of the alpha chain, was discovered in Black twins living in Cordele, Georgia. The structure of this variant was elucidated through analyses of tryptic peptides of the alpha chain which were isolated by high performance liquid chromatography. At birth, Hb Cordele accounted for about 21-23% of total hemoglobin, and for 30.4% in one of the babies at age 3.5 months. Hb Cordele has a normal oxygen affinity, but is mildly unstable at 60 degrees C. Some of its properties have been compared with those of Hb Kokura (alpha 47 Asp----Gly), Hb Hasharon (alpha 47 Asp----His), and Hb Arya (alpha 47 Asp----Asn). Studies on an adult carrier of Hb Cordele were not possible.

Nance WE: The relevance of twin studies to cardiovascular research. Prog Clin Biol Res 1984; 147:325-48 (64 ref.)

Nance WE, Kramer AA, Corey LA, Winter PM, Eaves LJ: A causal analysis of birth weight in the offspring of monozygotic twins. Am J Hum Genet 1983 Nov; 35(6):1211-23

Data were collected on the birth weights of 1,694 offspring of 385 sets of twins including 108 male and 131 female monozygotic pairs. To resolve the influence of birth order from the genetic, environmental, and maternal effects on birth weight, we analyzed the full-sib and maternal and paternal half-sib correlation matrices for birth orders one to five using a causal model that assumed each live-born child had an influence on the weight of the subsequent birth. Prenatal maternal influences explained 40% of the variation in birth weight of the first-born child and 52% for the fifth child; genetic or environmental factors common to monozygotic twins accounted for 72% of this effect, while environmental variables unique to individual mothers were responsible for the remaining 28%. The inclusion of a birth-order parameter resulted in a highly significant improvement in the goodness of fit of the causal model such that by the fifth child, 46% of the maternal variation could be attributed to the cumulative effects of previous live births.

Nance WE see **Magnus P**

Nara Y see **Enomoto S**

Narita K see **Kigawa J**

Nelson MM see **Viljoen DL**

Neri A, Wielunsky E, Henig E, Friedman S, Ovadia J: Group B streptococcus amnionitis with intact membranes associated with quintuplet delivery. Eur J Obstet Gynecol Reprod Biol 1984 Apr; 17(1):29-32

Chorioamnionitis is a frequent cause of premature labour and delivery, as well as of maternal and neonatal mortality. Group B streptococcus (GBS) has emerged over the past decade as a common pathogen in the etiology of neonatal sepsis. The case of chorioamnionitis reported here is unusual for three reasons: the premature labour was associated with intact membrane and amniotic fluid infected with GBS; all 5 infants were contaminated with GBS and all infants survived. Chorioamniotitis with intact membranes raises some questions regarding the antepartum use of steroids (potent anti-inflammatory agents), etc. The likelihood of chorioamnionitis in spite of cervical mucus, intact membranes, and the bacteriostatic activity of the amniotic fluid should alert the obstetrician to take special precautions, such as weekly vaginal cultures and appropriate vaginal antimicrobial treatment, in cases of imminent premature delivery.

Nevsímalová S, Elleder M, Smíd F, Zemánková M: Multiple sulphatase deficiency in homozygotic twins. J Inherited Metab Dis 1984;7(1):38-40

Multiple sulphatase deficiency was studied in 3 siblings--one pair of monozygotic twins and their sister. The children's psychomotor development was arrested at the age of 18 to 24 months, and the hypotonic syndrome combined with signs of spasticity appeared. There was marked hepatosplenomegaly, conspicuously dry scaly skin with the decortication syndrome developing and persisting in the presence of pronounced cachexia. Also present were numerous X-ray abnormalities, metachromatically staining granules in the urine, and Alder- Reilly 's bodies in the blood leukocytes and in specimens of bone marrow. Liver, skin and muscle biopsies performed simultaneously revealed accumulations of water-soluble mucopolysaccharides and deposits of sulphatides in the two twins. Enzyme assays demonstrated arylsulphatase A and B deficiency. The diagnosis was subsequently confirmed at all the three siblings' postmortem examinations.

Newton W, Keith L, Keith D: The Northwestern University multihospital twin study. IV. Duration of gestation according to fetal sex. Am J Obstet Gynecol 1984 Jul 15;149(6):655-8

Recently MacGillivray has observed that the average duration of male twin gestations is shorter than that of either female twin or male/female twin gestations. The data from 562 twin gestations from the Northwestern University multihospital twin study were used to test this observation. Male twin gestations were slightly but significantly shorter than other twin gestations as measured by pediatric examination (p less than 0.005). Approaching significance at the 0.05 level were findings that male twin gestations were shorter than other twin gestations when measured by dates, and that the male twins were slightly shorter and lighter than other twins. No significant differences were found between male/female twin gestations and female twin gestations. No relationship could be found between twin sex combinations and a variety of maternal and obstetric factors. Taken together, the results suggest that male twin gestations differ in some distinctive biologic sense from other twin gestations.

Nicholson SF see **Ehman RL**

Niebuhr E see **Hansen HE**

Nielsen IL see **Litt RA**

Nilsen ST, Bergsjø P, Nome S: Male twins at birth and 18 years later. Br J Obstet Gynaecol 1984 Feb;

NLM-DUO-A84 00024

91(2):122-7
An 18-year follow-up examination on 56 male twins born in 1962-1963 was done by comparing birth records with the results of medical examinations at drafting for military service in 1981. Of the studied twins, 14.3% were unfit for military service compared with 6.2% of the total population of Norwegian conscripts in the same year. Preterm delivery rather than twinning per se is suggested as an explanation for this result. Vision was impaired in the preterm twins more often than in the total group of conscripts. The general intelligence, measured by standardized tests at the military medical board, did not differ significantly between the group of twins and the control conscripts.

Nirmala AV, Vijaya R: Spontaneous vaginal delivery of conjoined twins by a special mechanism. J Indian Med Assoc 1983 Dec;81(11-12):207-8

Nnatu S, Kayode Y: Relative birth weight in twins. Int J Gynaecol Obstet 1983 Oct;21(5):377-80
A total of 579 sets of twins delivered in an obstetric population of 26,111 over a 10-year period were studied to reassess the veracity of the commonly held opinion that the first twin delivered is usually the heavier. Among the 579 sets of twins, 32 (5%) were of equal weight, while in 247 (42%) cases, twin I was heavier than twin II. In 235 (41%) cases, twin II was larger than twin I, in 65 (11%) the weight could not be compared. The mean birth weight of twin I was 2440 g, while that of twin II was 2410 (P greater than 0.05). Thus, even though twin I had the weight advantage more often than twin II, the difference is not statistically significant (t = 0.431).

Nome S see **Nilsen ST**

Nordén A see **Pero RW**

Nordmann Y see **de Verneuil H**

Norman RJ, Deppe WM, Joubert SM, Marivate M: Umbilical artery concentrations of androstenedione increased in early labour in the leading twin fetus. Br J Obstet Gynaecol 1984 Aug;91(8):776-80
Umbilical artery concentrations of androstenedione, progesterone, pregnenolone, pregnenolone sulphate and dehydroepiandrosterone sulphate were measured at birth in twin pairs, born by caesarean section. In the group born before the onset of labour, there were no significant differences in concentration of any of the steroids between the leading twin (twin I) and the second twin (twin II). In the group born during the latent phase of labour, levels of umbilical artery progesterone were significantly less in twin I (mean 501, SE 112 nmol/l) than in twin II (mean 887, SE 131) (P less than 0.05), while concentrations of androstenedione were increased in twin I [9.9 (SE 1.7) vs 4.7 (SE 0.7) nmol/l, P less than 0.01]. In patients delivered during active labour, androstenedione levels were consistently increased in twin I compared with twin II [11.7 (SE3.4) vs 4.3 (SE 0.7) nmol/l, P less than 0.01]. It is suggested that the rise in umbilical artery levels of androstenedione is derived from the fetal adrenal gland and may have an important role in the onset of labour.

Norman RJ, Maharaj C, Adhikari M, Joubert SM: Adrenal sensitivity to adrenocorticotrophin in twin neonates--effect of birth order and growth retardation. S Afr Med J 1984 Jul 21;66(3):90-2
The sensitivity of the neonatal adrenal gland to injected synthetic adrenocorticotrophin (ACTH) (Synacthen; Ciba-Geigy) 500 micrograms/m2 was assessed in 19 twin pairs by measurement of cortisol and dehydro-epiandrosterone sulphate (DHEAS) before and after injection. Ten of the neonates were growth-retarded with respect to their siblings and 11 pairs were delivered before the onset of labour. The cortisol response to ACTH was not significantly different between labour groups, between the first and second twins or between growth-retarded and non-growth-retarded twins. However, the rise in DHEAS was significantly less in the neonates delivered vaginally after labour. These results suggest that there may be a change in adrenal gland secretion in neonates born after labour compared with those born before the onset of contractions.

Nurnberger J Jr, Sitaram N, Gershon ES, Gillin JC: A twin study of cholinergic REM induction. Biol Psychiatry 1983 Oct;18(10):1161-5
Seven monozygotic twin pairs were found to display concordance for sensitivity to REM sleep induction by arecoline (intraclass correlation (ri) of 0.69, F = 5.35, p less than 0.02). The REM1-REM2 interval on the placebo night did not show significant concordance (ri = 0.05, F = 1.11, p = 0.44). Our previous study suggested that increased sensitivity to the muscarinic agonist arecoline, as measured by time to onset of the second REM period during sleep, may be an indicator of vulnerability to affective disorder. The present finding of twin concordance in response to arecoline suggests genetic variation in sensitivity of CNS muscarinic cholinergic receptors. Such increased sensitivity may play an etiologic role in affective disorder.

Nurnberger JI Jr, Jimerson DC, Simmons-Alling S, Tamminga C, Nadi NS, Lawrence D, Sitaram N, Gillin JC, Gershon ES: Behavioral, physiological, and neuroendocrine responses to arecoline in normal twins and 'well state' bipolar patients. Psychiatry Res 1983 Jul;9(3):191-200
Cholinergic supersensitivity has been postulated to be an etiologic factor in affective disorder. After several pilot dose-response studies, we administered 8 mg of the cholinergic agonist arecoline subcutaneously to eight pairs of normal volunteer identical twins and eight bipolar patients currently euthymic and unmedicated. During the hour following arecoline administration, the Profile of Mood States (POMS) showed an increase in total mood disturbance in both patient and control groups. Mean systolic blood pressure, pulse, plasma cortisol, prolactin, and growth hormone also increased. Anger and elation scores on the POMS showed significant concordance in identical twins, as did change in prolactin, implying that these are the components of drug response possibly influenced by genetic factors. None of these responses differentiated well state patients from controls. Thus, mood, behavioral, and neurochemical responses to arecoline, which appears to have nonspecific neurochemical effects at the dose employed, are not markers of vulnerability to affective illness.

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Nyberg DA, Filly RA, Golbus MS, Stephens JD: Entangled umbilical cords: a sign of monoamniotic twins. J Ultrasound Med 1984 Jan;3(1):29-32

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Oakley GP Jr see **Kassam G**

O'Brien WF see **Knuppel RA**

Odenheimer DJ, Zunzunegui MV, King MC, Shipler CP, Friedman GD: Risk factors for benign breast disease: a case-control study of discordant twins. Am J Epidemiol 1984 Oct;120(4):565-71
The influences of potential risk factors for benign breast disease were assessed using women twins in

NLM-DUO-A84 00025

a matched pair design. Two groups of cases from the Kaiser-Permanente Twin Registry were considered: 1) 90 pairs of female twins in which one twin reported a history of benign breast disease confirmed by biopsy and her twin reported no history of benign breast disease, and 2) 48 pairs of female twins in which the case had clinically diagnosed fibrocystic benign breast disease and her twin was free of disease at examination and reported no history of the disease. Results were similar in these two samples. A significant positive association was found between benign breast disease and coffee consumption. Oral contraceptive use and greater body mass were inversely associated with benign breast disease after controlling for possible confounding variables by matched-pairs multiple logistic analysis. All associations were stronger for monozygotic than for dizygotic pairs. Twin pairs discordant for disease provide an excellent sample in which to assess the importance of potential risk factors while controlling for early environmental and genetic backgrounds.

Olsen J, Rachootin P: The end of the decline in twinning rates? [letter] Scand J Soc Med 1983; 11(3):119

Olsen ME see **Martin NG**

Oni GA: Twins and their birth sizes in a Nigerian community. East Afr Med J 1983 Jul;60(7):492-7

Orlander J see **Larsson L**

Osterkamp JA see **Zionts LE**

Ovadia J see **Neri A**

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Paigen B, Yarfitz S, Tabron D: Urinary glucuronidase and arylsulfatases in identical twins of bladder cancer patients. Cancer Res 1984 Aug;44(8):3624-6
Studies showing that bladder cancer patients have unusually high levels of urinary beta-glucuronidase and arylsulfatases A and B led to the suggestion that these urinary enzymes may participate in bladder cancer etiology. An alternative explanation of the high levels of these urinary enzymes in bladder cancer patients is that the disease itself causes the elevation. Since the levels of these enzymes are genetically determined, measuring these enzymes in healthy identical twins of bladder cancer patients can test whether high enzyme levels occurred prior to bladder cancer. Five healthy identical cotwins of bladder cancer patients, together with matched controls, were measured for urinary beta-glucuronidase, arylsulfatases A and B, and two other lysosomal enzymes as controls, alpha- and beta-galactosidases. The mean levels of all five enzymes were not very different in the cotwins and controls, suggesting that high levels of urinary enzymes observed in bladder cancer patients are a consequence of disease rather than occurring prior to disease and contributing to its etiology.

Palmer PE, Stadalnick R, Arnon S: The genetic factor in cervical spondylosis. Skeletal Radiol 1984; 11(3):178-82
Lateral cervical spine radiographs of 23 pairs of twins were matched. There is a close similarity in the shape of the vertebrae of twins, particularly if monozygotic. It can also be shown that the degenerative changes in the cervical spines of twins follow a very similar pattern. The suggestion is made that the shape of individual vertebrae is of considerable significance in the development of the changes which are found with ageing, and that this similarity in shape explains the familial pattern of spondylosis.

Palo J see **Haltia M**

Pappelbaum SJ see **Mathewson JW**

Park SS see **Fujino T**

Park YS see **Chi JG**

Partinen M, Kaprio J, Koskenvuo M, Putkonen P, Langinvainio H: Genetic and environmental determination of human sleep. Sleep 1983; 6(3):179-85
Self-reported sleep data from 2238 monozygotic and 4545 dizygotic adult twin pairs indicated a significant hereditary effect on sleep length [overall heritability estimate (h2 = 0.44)] and on sleep quality (h2 = 0.44). When the data were examined in subgroups defined by sex, age (18-24 years and 25 or more years of age), and cohabitation status of the twin pair, the highest heritability estimates for sleep length were for twins living together aged 25 or older. For twins living apart the heritability estimates were statistically significant in all women and men aged 25 or older. For sleep quality significant heritability estimates were found for all groups except women living together.

Pasquali F see **Cainelli T**

Peleg D see **Dicker D**

Pellock JM see **Antunes JL**

Pelosi M see **Apuzzio JJ**

Pentogalos GE, Lascaratos JG: A surgical operation performed on Siamese twins during the tenth century in Byzantium. Bull Hist Med 1984 Spring; 58(1):99-102

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Pero RW, Bryngelsson C, Bryngelsson T, Nordén A: A genetic component of the variance of N-acetoxy-2-acetylaminofluorene-induced DNA damage in mononuclear leukocytes determined by a twin study. Hum Genet 1983;65(2):181-4
The level of N-acetoxy-2-acetylaminofluorene (NA-AAF)-induced unscheduled DNA synthesis and the level of covalent binding of NA-AAF to DNA were determined in the mononuclear leukocytes of monozygotic and diazygotic twin pairs (n = 16 for each type). A statistically significant high degree of heritability was calculated for both parameters which, in turn, indicate genetic control of individual levels of induced DNA damage by NA-AAF.

Phelps C see **Hsu LK**

Pietrasiuk D see **Allen N**

Pletscher LS see **Schroeder JL**

Poulton DR see **Zilberman Z**

Pratola D see **Hubinont C**

Propping P see **Friedl W**

Pulliam RP see **Garten KJ**

Putkonen P see **Partinen M**

Pyke DA see **Barnett AH**

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Raghavan KR, Ambani LM, Ratnaparki SK, Dhareshwar SS, Khare DA, Badbade JN: Monozygotic twinning and sirenomelia. Indian Pediatr 1983 Apr;20(4):308-9

Rao DC see **Byard PJ**

Rao DC see **McGue M**

Ratnaparki SK see **Raghavan KR**

Rattan PK see **Knuppel RA**

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Rawlinson KF see **Garten KJ**

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NLM-DUO-A84 00026

of the first and second twins. Obstet Gynecol 1984 Apr;63(4):502–6
A clinical investigation was undertaken to challenge the commonly accepted view that the interval between the birth of the first and second twins should be preferably within 15 minutes and certainly no more than 30 minutes. During 1981 and 1982, 115 patients with live-born twins at 34 or more weeks' gestation underwent an attempted vaginal delivery at four regional perinatal centers. The interval between vaginal delivery of the first and second twins (mean, 21 minutes, range, one to 134 minutes) was 15 minutes or less in 70 (61%) cases and more than 15 minutes in 45 (39%) cases. Excluding conditions associated primarily with prematurity, all second twins delivered beyond 15 minutes did well despite the delay and had no signs of excess trauma or low five-minute Apgar scores. Maternal complications were also uncommon, although combined vaginal-abdominal delivery was more frequent if there was a delay of more than 15 minutes (eight of 45 versus two of 70, P less than .02). The authors conclude that if there is continuous fetal and uterine monitoring, a time restriction for the delivery interval between the first and second infants is not necessary.

Reis DN see **Keret D**
Reiss R see **Winkler H**
Relier JP see **de Gamarra E**
Reveley AM, Reveley MA, Murray RM: Cerebral ventricular enlargement in non-genetic schizophrenia: a controlled twin study. Br J Psychiatry 1984 Jan;144:89–93
In a group of schizophrenics of twin birth, no evidence of ventricular enlargement was found where there was a family history of major psychiatric disorder. Among those schizophrenics without such a family history, cerebral ventricular size was significantly increased (P less than 0.01), and there was also evidence of birth complications. Among normal control twins, those who reported complicated births had significantly larger ventricles.

Reveley AM see **McGuffin P**
Reveley MA see **Gurling HM**
Reveley MA see **Reveley AM**
Rios B, Duff J, Simpson JW: Endocardial fibroelastosis with congenital complete heart block in identical twins. Am Heart J 1984 Jun;107(6):1290–3
Robinette CD see **Hrubec Z**
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Rodesch F see **Hubinont C**
Rodriguez MA: Four-vessel umbilical cord without congenital abnormalities [letter] South Med J 1984 Apr;77(4):539
Roessmann U see **Wongmongkolrit T**
Romero R, Duffy TP, Berkowitz RL, Chang E, Hobbins JC: Prolongation of a preterm pregnancy complicated by death of a single twin in utero and disseminated intravascular coagulation. Effects of treatment with heparin. N Engl J Med 1984 Mar 22;310(12):772–4
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Rowe DC: Biometrical genetic models of self-reported delinquent behavior: a twin study. Behav Genet 1983 Sep;13(5):473–89
Rowell DM see **Gibson JB**
Rowell DM see **Martin NG**
Rowold E see **Barnett AH**
Rozzoni M see **Cainelli T**
Russell JM see **Byard PJ**
Russo J see **Filkins K**

S

Sabbagha RE see **Socol ML**
Sakamoto T see **Takenaka K**
Salmon Y see **Woon KY**
Samuel N see **Dicker D**
Sanitato JJ, Burke MJ: Atropine toxicity in identical twins. Ann Ophthalmol 1983 Apr;15(4):380–2
Two cases of atropine toxicity in monozygotic twins presented with the usual systemic manifestations: hyperpyrexia, agitation, mydriasis, tachypnea, tachycardia, decreased gastrointestinal motility, anhydrosis, and skin flush. Intravenous physostigmine, the treatment of choice, was used to resolve the toxic crisis. Physostigmine counteracts atropine's anticholinergic effects at the postganglionic nerve synapses of the autonomic nervous system. The chance of atropine toxicity occurring with ophthalmic usage may be lessened by careful parental instruction about dosages and about the warning signs of its systemic toxicity.
Sarda P, Bard H: Gastroschisis in a case of dizygotic twins: the possible role of maternal alcohol consumption. Pediatrics 1984 Jul;74(1):94–6
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Sato T, Kaneko K, Konuma S, Sato I, Tamada T: Acardiac anomalies: review of 88 cases in Japan. Asia Oceania J Obstet Gynaecol 1984 Mar; 10(1):45–52
Schimanek P see **Stengel-Rutkowski S**
Schon F, Marshall J: Subarachnoid haemorrhage in identical twins. J Neurol Neurosurg Psychiatry 1984 Jan;47(1):81–3
A pair of identical twins both of whom died of subarachnoid haemorrhage from ruptured anterior communicating artery aneurysms are reported. These twins are compared to the three other reported twins with ruptured cerebral aneurysms.
Schroeder JL, Hahn BH, Beale MG, Pletscher LS: Genetic, hormonal, and immune studies in a pair of identical twin boys discordant for lupus. Arthritis Rheum 1983 Nov;26(11):1399–404
Schultz N see **Jung JH**
Schulz B, Witt S, Hildmann W, Ratzmann KP, Strese J, Keilacker H: Islet cell antibodies in individuals at increased risk for IDDM.
Exp Clin Endocrinol 1984 Apr;83(2):192–8
Islet cell cytoplasmic antibodies (ICA), islet cell surface (ICSA) antibodies, HLA phenotypes, glucose tolerance, insulin secretion, and insulin sensitivity were studied in 16 twins of insulin-dependent diabetics as well as in 21 subjects with impaired glucose tolerance (IGT). 60% of the identical twins and 40% of the non-identical twins were ICSA -positive. The prevalence of ICSA in control persons was only 5%. ICA were found in all identical twins and in half of the non-identical twins. However, ICSA and ICA results were concordant in only 46% of the whole group of twins. There was no correlation between ICSA and either insulin secretion or insulin sensitivity. In the IGT subjects exhibiting low and normal insulin responses ICSA were observed in 67% and 23%, respectively. A high proportion of twins, but not of IGT subjects, had HLA DR3 or DR4 antigens which seem to confer genetic susceptibility to the development of IDDM. In the majority of DR3/DR4 twins, ICSA were also present. This might support the hypothesis of genetically-based autoimmunity, although the precise relationship between HLA and islet cell antibodies has to be clarified in a prospective study.
Schwers J see **Hubinont C**

NLM-DUO-A84 00027

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Seeds JW see **Koontz WL**
Segal NL, Bouchard TJ Jr: Zygosity diagnosis of twins in medical research [letter] Arch Intern Med 1984 Jul;144(7):1505, 1509
Segal NL: Handedness in determination of twin types [letter] Arch Neurol 1984 Jan;41(1):14
Segal NL: Twin studies of schizophrenia [letter] Biol Psychiatry 1983 Nov;18(11):1333-5
Serville F, Carles D, Maroteaux P: Thanatophoric dysplasia of identical twins [letter] Am J Med Genet 1984 Mar;17(3):703-6
Sfar Z see **de Verneuil H**
Shah DM see **Knuppel RA**
Sharer LR see **Antunes JL**
Sharma K see **Byard PJ**
Sheets JW: Excessive twinning in a rural American genealogy. Ann Hum Biol 1984 May-Jun; 11(3):257-9
A family record of 1693 descendants in rural Missouri exhibits a twinning rate of 2 X 2%. Weinberg's Differential Rule estimates the level of monozygosity in this twin sample at 61-83%, unlike previous results dominated by dizygosity . These historical data cannot directly support a genetic basis for monozygosity though. Clinical studies seem the best solution to the genetics of twinning.
Shepard TH see **Van Allen MI**
Shibata A see **Enomoto S**
Shida A see **Kawakami Y**
Shimizu A, Endo M: Comparison of patterns of handedness between twins and singletons in Japan. Cortex 1983 Sep;19(3):345-52
The handedness questionnaire of thirteen items which was identical to that employed in our previous study on singletons was administered to 62 monozygotic (MZ) and 48 dizygotic (DZ) twin pairs in Japan. Information on forced conversion of hand usage in childhood was also obtained. Results indicated that the incidence of left-handedness was 3.6% and that of non-right-handedness (which includes mixed- and left-handedness) was 5.9%. There was no significant difference in the incidence of left-handedness or of non-right-handedness between MZ and DZ twin groups. The proportion of converted right-handedness in MZ twins was slightly higher than in DZ twins. MZ pairs were somewhat more concordant for handedness than DZ pairs. Item analysis indicated that the incidence of individuals who use the left hand for writing and eating was only 0.9% and 1.8%, respectively. A comparison of the results of the present survey on twins with those of our previous one on singletons revealed that the incidence of left-handedness or non-right-handedness in twins is the same as that in singletons. Twins (especially MZ twins) have experienced a forced conversion to right-hand usage more frequently than singletons.
Shipler CP see **Odenheimer DJ**
Silbermann M, Bar-Maor JA, Auslander L: Craniofacial microsomia in a parasite of a heteropagus conjoined twin: a clinical and histopathologic evaluation. Head Neck Surg 1984 Jan-Feb;6(3):792-800
This report evaluates a rare case of craniofacial microsomia in a partially developed, malformed heteropagus conjoined twin. In this instance, several major components of the craniofacial complex were involved: bones, cartilage, teeth, salivary glands, auditory apparatus, cerebrum, cranial nerves, and ocular neuroepithelium. In addition, cervical vertebrae and appendicular long bones were markedly affected. To date, the underlying disorder (whether genetic, metabolic, or environmental) responsible for the development of this congenital malformation is not fully understood. Our clinical and pathologic examinations tend to suggest that an apparent lack of an adequate arterial blood supply to the growing embryo could have contributed to the elaboration of this complex syndrome. The fact that the parasite's blood supply relied mainly upon a single, medium-sized artery (1.5 mm in diameter) could have brought about local ischemic milieus during the critical phases of embryogenesis; hence, impeding the preprogrammed migration of neural crest cells to their end targets in the upper branchial arches. In such a case, the normal sequence of cell differentiation is damaged, which in turn imposes a severe impact on the morphogenesis of the various tissues composing the craniofacial complex.
Simmons GM Jr see **Denholm TA**
Simmons-Alling S see **Nurnberger JI Jr**
Simpson JW see **Rios B**
Singh LI see **Bhargava V**
Singh M, Hadi F, Aram GN, Arya LS: Craniosynostosis--Crouzon's disease and Apert syndrome. Indian Pediatr 1983 Aug;20(8):608-12
Siplovich L, Carmi R, Bar-Ziv J, Karplus M, Mares AJ: Discordant Hirschsprung's disease in monozygotic twins. J Pediatr Surg 1983 Oct; 18(5):639-40
Two pairs of twins are being reported where monozygocity was supported by the observed sharing of a single and common placenta and by ABO and HLA identity. Only one of each pair of twins was affected by long-segment Hirschsprung's disease; the other twins were entirely normal. Discordant Hirschsprung's disease in monozygotic twins is very rare. The etiology in such cases is influenced by genetic or by environmental intrauterine factors rather than by postnatal influences, as suggested elsewhere.
Sitaram N see **Nurnberger J Jr**
Sitaram N see **Nurnberger JI Jr**
Smíd F see **Nevsímalová S**
Smith DW see **Jung JH**
Smith DW see **Van Allen MI**
Socol ML, Tamura RK, Sabbagha RE, Chen T, Vaisrub N: Diminished biparietal diameter and abdominal circumference growth in twins. Obstet Gynecol 1984 Aug;64(2):235-8
Forty-three women with uncomplicated twin pregnancies and reliable menstrual dates had serial ultrasonic measurements of the fetal biparietal diameter (BPD) and abdominal circumference. The 25th, 50th, and 75th fetal BPD and abdominal circumference growth percentiles were generated from this normal twin population and compared with those for singletons. A slowing of both BPD and abdominal circumference growth in twins was noted in the third trimester. However, newborn anthropometric data were collected that suggest that the head circumference of twins is comparable to that of singletons. This discrepancy between ultrasonic BPD and neonatal head circumference in predicting head size may possibly be explained by dolichocephaly attributed to uterine crowding. For the antenatal assessment of growth in twins the authors recommend the use of BPD and abdominal circumference charts derived specifically from such uncomplicated twin pregnancies. When the BPD growth is abnormal, the head circumference and abdominal circumference should be measured to assess whether or not fetal growth is normal.
Soeldner JS see **Ganda OP**
Somer H see **Haltia M**

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Song XL see **Wang C**
Sparkes RS see **Champlin RE**
Sperling R see **Abramson A**
Spiliopoulos AJ see **Barnett AH**
Stadalnick R see **Palmer PE**
Stanger JD see **Yovich JL**
Stark J see **Westaby S**
Starzl TE: Landmark perspective: The landmark identical twin case. JAMA 1984 May 18; 251(19):2572-3
Steck WD see **Kish LS**
Stene J see **Stengel-Rutkowski S**
Stengel-Rutkowski S, Warkotsch A, Schimanek P, Stene J: Familial Wolf's syndrome with a hidden 4p deletion by translocation of an 8p segment. Unbalanced inheritance from a maternal translocation (4;8)(p15.3;p22). Case report, review and risk estimates. Clin Genet 1984 Jun;25(6):500-21
This is the case report of a patient with Wolf's syndrome having a monosomy 4pter----p15.3 and an additional trisomy 8pter----p22, derived from a maternal balanced translocation t(4;8)(p15.3;p22) after 2:2 disjunction and adjacent-1 segregation. The patient's phenotype is presumably slightly modified by the trisomic 8p segment. Literature analyses indicate that phenotypic 'hybrids' with traits of monosomy 4p and of other autosomal segment trisomies exist. The dermatoglyphics of the patient were not highly characteristic for Wolf's syndrome. Also the dermatoglyphics of the balanced translocation carriers were unspecific and did not reflect the carrier status. Pedigree analyses of 46 reported families with reciprocal translocations involving the short arm of chromosome 4 show a high risk (20.5% +/- 4.6%) for unbalanced offspring (trisomy or monosomy 4p) after 2:2 disjunction and adjacent-1 segregation, if the breakpoint in the recipient chromosome is terminal and the resulting imbalance concerns the 4p segment only. It is considerably lower (4.5% +/- 2.5%) if the breakpoint in the recipient chromosome is subterminal, as in the reported case, and the resulting imbalance concerns other chromosome segments additionally to the 4p segment. In both instances, the risk decreases with increasing segment length. The risk for unidentified abortions, stillbirths or neonatal deaths is also high in these families (about 40%). The frequency of progeny with balanced compared to progeny with normal karyotype corresponds to the expected 50% for alternate segregation.
Stenszky V see **Balázs C**
Stephanov S see **Joubert M**
Stephens JD see **Nyberg DA**
Stewart JR, Gladen HE: Procidentia in identical twins. Report of cases and analysis of treatment options. Dis Colon Rectum 1984 Sep;27(9):608-12
Within a six-week interval, adult identical twin brothers presented with third-degree complete rectal prolapse. Since no other predisposing factors were evident, contribution of an inherited predisposition is implied. Evaluation of alternatives supports use of presacral rectal mobilization with subtotal anterior resection and reanastamosis of sigmoid colon and rectum as the curative procedure.
Strese J see **Schulz B**
Stubbs WA see **Barnett AH**
Sudarsky L, Myers RH, Walshe TM: Huntington's disease in monozygotic twins reared apart. J Med Genet 1983 Dec;20(6):408-11
Monozygotic twins, identical by serological studies, with Huntington's disease are described who were raised in separate households from birth. Age at onset, landmarks of the disease, and behavioural abnormalities were strikingly similar. Previously reported twin studies in Huntington's disease are reviewed. Twin data support the hypothesis that age at onset and several other clinical features of the illness are substantially determined by genetic mechanisms.
Sundkvist L: Thoracoabdominal ectopia cordis in a twin. A case report. Scand J Thorac Cardiovasc Surg 1983;17(3):191-5
Thoracoabdominal heart is a subgroup of the rare ectopia cordis complex. It may be part of an unusual syndrome with multiple abnormalities involving the anterior abdominal wall, sternum, diaphragm, pericardium and heart. A twin who died immediately after delivery showed four of the five defects in this syndrome.

T

Tabron D see **Paigen B**
Takahashi H see **Takenaka K**
Takenaka K, Sakamoto T, Hada Y, Amano K, Yamaguchi T, Takahashi H, Takikawa R, Hasegawa I: Mitral valve prolapse in five members of a family including the identical twins. J Cardiogr 1983 Mar; 13(1):159-70
A family in which the five members including the identical twins had a mitral valve prolapse was described. None of these members had any known stigmata of Marfan syndrome and their auscultatory findings were different each other. M-mode echocardiograms disclosed a midsystolic buckling of the mitral valve in the identical twins, their parents and the mother's brother, but all were asymptomatic. Electrocardiograms revealed a wandering pacemaker in two members. The index case was a 13-year-old girl whose apical late systolic murmur was detected incidentally by the mass screening examination for cardiac diseases. Both the inhalation of amyl nitrite and injection of methoxamine induced the augmentation of this murmur and made it holosystolic. The identical twin of the index case had multiple apical non-ejection clicks. However, a mitral regurgitant murmur was not induced by pharmacological provocations. Two-dimensional echocardiograms revealed prolapse of both the anterior and posterior mitral valve leaflets in both of them. Their mother had a late systolic click and the mother's brother had a cardiopulmonary murmur. The abnormal auscultatory findings were not observed in their father. This familial study suggested the genetic background and the various clinical manifestations of mitral valve prolapse.
Takikawa R see **Takenaka K**
Tamada T see **Sato T**
Tamminga C see **Nurnberger JI Jr**
Tamura RK see **Socol ML**
Tan KL see **Woon KY**
Tarone RE see **Fujino T**
Taylor MB, Anderson RL, Golbus MS: One hundred twin pregnancies in a prenatal diagnosis program. Am J Med Genet 1984 Jul;18(3):419-22
One hundred pairs of twins were encountered in 8,500 pregnancies having genetic amniocentesis. Only 5 of 27 (18.5%) pairs were recognized before the institution of routine ultrasonic examination, while 69 of 73 (94%) twin pairs were found after ultrasound use. Amniotic fluid was obtained from both sacs in 71 of the 73 (97%) identified twin gestations in which both twins were living at the time of amniocentesis.

NLM-DUO-A84 00029

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Tejani NA see **Chatterjee MS**

Tengio FU: A survey of 43 twin deliveries at Bagamoyo District Hospital--Tanzania. East Afr Med J 1983 Sep;60(9):622-5

Terenius L see **Krotkiewski M**

Theile H see **Martin NG**

Thompson TR see **Berry SA**

Torgersen S: Genetic factors in anxiety disorders. Arch Gen Psychiatry 1983 Oct;40(10):1085-9
We investigated genetic factors in the determination of anxiety disorders in a study of 32 monozygotic (MZ) and 53 dizygotic (DZ) adult same-sexed twins. The frequency of anxiety disorders was twice as high in MZ as in DZ co-twins of the total proband group, alike in the MZ and DZ co-twins of the generalized anxiety disorder proband group, and three times as high in MZ as in DZ co-twins of the other proband groups. Anxiety disorders with panic attacks were more than five times as frequent in MZ as in DZ co-twins in a combined group of probands with panic disorders and agoraphobia with panic attacks. For generalized anxiety disorder, genetic factors were not apparent, while genetic factors were not apparent, while genetic factors appear to influence the development of the other anxiety disorders, especially panic disorder and agoraphobia with panic attacks.

Torgersen S: Genetic and nosological aspects of schizotypal and borderline personality disorders. A twin study. Arch Gen Psychiatry 1984 Jun; 41(6):546-54
The aim of this study was to investigate etiological and nosological aspects of the schizotypal and borderline personality disorders. The sample consisted of 44 schizotypal, 15 schizotypal and borderline, and ten borderline same-sexed twin probands. The investigation of the co-twins indicated that genetic factors seemed to influence the development of the schizotypal, but not the borderline, personality disorders. The basic genetic core of the schizotypal syndrome seemed to consist of schizoid and paranoidlike features, and not psychoticlike cognitive and perceptual distortions. The study did not indicate any relationship between schizotypal and borderline personality disorders and affective and schizophrenic disorders. Further research is needed to confirm the independent status of the schizotypal syndrome in relation to the schizoid, avoidant, and paranoid personality disorders, and the borderline syndrome in relation to the histrionic , narcissistic, and antisocial personality disorders.

Townley RG see **Hopp RJ**

Trusler S see **Kassam G**

Turner SW see **Mathewson JW**

V

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Van Allen MI, Smith DW, Shepard TH: Twin reversed arterial perfusion (TRAP) sequence: a study of 14 twin pregnancies with acardius. Semin Perinatol 1983 Oct;7(4):285-93

Van Assche A see **Moerman P**

Vanderdoelen JL see **Zamel N**

van Gent I see **Zeilmaker GH**

Van Staey M, De Bie S, Matton MT, De Roose J: Familial congenital esophageal atresia. Personal case report and review of the literature. Hum Genet 1984; 66(2-3):260-6
Esophageal atresia with or without tracheoesophageal fistula (EA +/- TEF) usually occurs sporadically either as an isolated malformation or in conjunction with other congenital anomalies. Seventy-six familial cases are recorded in the literature. Two personal cases are additionally reported. An overview of the 33 pedigrees with familial occurrence of EA is presented. All available data of relevance for genetic analysis are compiled in eight tables. Attention is given to possible heterogeneity between sporadic and familial and between isolated and associated EA. Guidelines for genetic counseling are presented. With exception of the cases where EA is part of a chromosomal or of a known monogenic or teratogenic syndrome, the recurrence risks fit into a multifactorial scheme.

Varner MW see **Rayburn WF**

Verma UL see **Chatterjee MS**

Vijaya R see **Nirmala AV**

Viljoen DL, Nelson MM, Beighton P: The epidemiology of conjoined twinning in Southern Africa. Clin Genet 1983 Jul;24(1):15-21
Thirty-one sets of conjoined twins were born in Southern Africa during the period February 1974 to May 1982 with a striking increase in incidence in 1974 and 1975. There was no ethnic or social predilection, but clustering of cases occurred in a remote area of Zimbabwe. No aetiological agent was discovered, and there was no seasonal variation in the time of conception. Female conjoined twins accounted for 62% of cases, and twenty sets were of the thoracopagus type. Four pairs were separated, three of which were of the xiphopagus subtype and have survived.

W

Wagner HN Jr see **Wong DF**

Waldman JD see **Mathewson JW**

Walshe TM see **Sudarsky L**

Wang C, Song XL, Yang XD, Zhang C: Congenital heart disease and ocular hypertelorism--a new case and a summary of the literature. Thorac Cardiovasc Surg 1984 Jun;32(3):184-6
A case of patent ductus arteriosus coinciding with ocular hypertelorism (Greig's syndrome) is reported for the first time. The literature regarding association of congenital cardiac malformations and ocular hypertelorism is reviewed.

Wang GM see **Guo BK**

Ward CD, Duvoisin RC, Ince SE, Nutt JD, Eldridge R, Calne DB, Dambrosia J: Parkinson's disease in twins. Adv Neurol 1984;40:341-4

Waring WW see **Awotwi JD**

Warkotsch A see **Stengel-Rutkowski S**

Watanatittan S: Congenital diaphragmatic hernia in identical twins. J Pediatr Surg 1983 Oct;18(5):628-9
Identical twins with congenital diaphragmatic hernia in both members are presented. They are the second pair reported in the world literature.

Watt GD see **Hopp RJ**

Webb WB, Campbell SS: Relationships in sleep characteristics of identical and fraternal twins. Arch Gen Psychiatry 1983 Oct;40(10):1093-5
We recorded EEGs for 14 identical and 14 fraternal young adult twin pairs during one night of sleep in our laboratory. They were instructed to sleep as long as possible. The extended sleep of the identical and fraternal twins was correlated. The structural measures of sleep of the fraternal twins were not correlated. The onset latencies, awakening measures, stage changes, and rapid eye movement amounts were significantly correlated in the identical twins.

NLM-DUO-A84 00030

The nature of the measures used supports an interpretation of hereditary aspects of sleep length and certain structural components of sleep.

Weiss RR see **Chatterjee MS**

Welsh RJ see **Heffron WA**

West D see **Fujino T**

Westaby S, Dinwiddie R, Chrispin A, Stark J: Pulmonary artery sling in identical twins--report of two cases. Thorac Cardiovasc Surg 1984 Jun; 32(3):182-3

Pulmonary artery sling was successfully treated by division and reimplantation of the left pulmonary artery in identical twins. Long-term patency of the reimplanted pulmonary artery in both twins as well as in 4 other operated children was confirmed by lung perfusion scan. Early operative treatment of pulmonary artery sling is advocated.

White AG see **Khuffash FA**

Whitfield JB, Martin NG: The effects of inheritance on constituents of plasma: a twin study on some biochemical variables. Ann Clin Biochem 1984 May; 21 (Pt 3):176-83

Heritability and within-person repeatability of thirteen constituents of plasma were assessed in a study of 206 pairs of male and female twins. Repeat measurements were available on 44 pairs. For bilirubin, calcium, creatinine, phosphate and potassium, the individuality of these characteristics was genetic in origin. Total protein, albumin and globulin showed significant heritability but considerable variation between occasions, while bicarbonate, chloride, iron, sodium and urea showed mainly environmental effects.

Whitfield JB, Martin NG: Plasma lipids in twins. Environmental and genetic influences. Atherosclerosis 1983 Sep;48(3):265-77

A study on 205 pairs of male and females twins, aged from 18 to 34 years. showed significant heritabilities for total and high density lipoprotein cholesterol and for triglycerides. Significant effects of shared environment were also found for total and HDL cholesterol, possibly to a greater extent in women than in men. Triglycerides showed greater variance in men but a model specifying different sized environmental and genetic parameters in the two sexes gave a good fit and indicated that the factors influencing plasma triglycerides are the same in men and women although the effects they produce are scaled differently.

Whitfield JB see **Martin NG**

Wielunsky E see **Neri A**

Wilkieson C see **Goudie BM**

Williamson JR see **Barnett AH**

Williamson JR see **Ganda OP**

Wilson JB see **Nakatsuji T**

Wing L see **Burgoine E**

Winkler H, Kott I, Reiss R: Site-specific, simultaneous presentation of colonic carcinoma in identical twins. Dis Colon Rectum 1983 May;26(5):344-6

The development of identically sited carcinoma of the colon in identical twins is described. A simultaneous presentation occurred. The case is discussed in the context of the cancer family syndrome.

Winter PM see **Nance WE**

Wiswell TE, Fajardo JE, Bass JW, Brien JH, Forstein SH: Congenital toxoplasmosis in triplets. J Pediatr 1984 Jul;105(1):59-61

Witt S see **Schulz B**

Wojnarowska F: Simultaneous occurrence in identical twins of discoid lupus erythematosus and polymorphic light eruption. J R Soc Med 1983 Sep; 76(9):791-2

Wolner MF see **Bisbing RE**

Wong DF, Espinola D, Camargo EE, Douglass KH, Koller DW, Wagner HN Jr: Sequential computer-assisted hepatobiliary scintigraphy in the evaluation of conjoined twins. AJR 1984 Mar; 142(3):479-81

Wongmongkolrit T, Lederhandler M, Roessmann U: Central nervous system of a thoracopagus. Acta Neuropathol (Berl) 1984;63(1):80-2

Postmortem examination of the central nervous system (CNS) of a dicephalus thoracopagus tetrapus revealed two separate brains and spinal cords. On the conjoined side the spinal cord showed hypoplasia of the anterior horns and dorsal funiculi at the lower cervical and upper thoracic levels. Hypoplasia of the peripheral nerves, anterior horn cells, and dorsal funiculi is a consequence of a reduction in tissue mass due to a loss of inductive influence.

Woon KY, Ho TH, Gooi SM, Tan KL, Salmon Y: The acardiac foetus. J Singapore Paediatr Soc 1983; 25(3-4):167-72

Wright J see **Merwin MC**

Wyshak G, Honeyman MS: Increased deaths due to endocrine system diseases and allergies among mothers of dizygotic twins. Metabolism 1984 Apr; 33(4):375-8

To test the hypothesis that mothers of DZ twins, who seem to represent a separate population from mothers of singletons in terms of levels of pituitary gonadotropins, height and weight, and reproductive and menstrual characteristics, have different patterns of disease and mortality, causes of non-cancer deaths were examined. Study subjects were 3,982 mothers of unlike-sexed (DZ) twins and other polyzygous multiple births, and a matched comparison group of 3,982 mothers of singletons only. A significantly increased risk of death due to diseases in ICD Group III, Allergic Endocrine System, Metabolic and Nutritional Diseases, was found among mothers of DZ twins (relative risk (RR) = 2.4, exact two-tail P = 0.024, exact 95% confidence limits 1.11 to 5.62). Of the 24 deaths among mothers of DZ twins, 18 were due to diabetes, 2 to diseases of the adrenal glands, 1 to a thyroid gland and, 3 to asthma. Of the ten deaths in the comparison group, nine were due to diabetes and one to asthma. Excluding the asthmas, the RR for endocrine system diseases is 2.33, exact two-tail P = 0.042, exact 95% CL 1.02 to 5.79. These observations are consistent with evidence in the literature which shows an association between endocrine system diseases and twinning, and between gonadotropic hormones and diabetes.

X

Xu XH, McFarlin DE: Oligoclonal bands in CSF: twins with MS. Neurology (NY) 1984 Jun;34(6):769-74

Oligoclonal bands (OCBs) were examined in CSF from 23 normal controls, 8 cases of inflammatory neurologic diseases, 24 cases of noninflammatory neurologic diseases, 27 sporadic cases of MS, and the 29 MS twin pairs, by isoelectric focusing followed by silver staining or western transblotting and immunoperoxidase staining. These methods are sensitive enough to detect as little as 25 ng of IgG. OCBs were detected in the CSF of 34 of 35 twins with clinical evidence of MS and in the CSF of 12 of 17 clinically normal twins. In some of these normal twins, the presence of OCBs in CSF antedated clinical manifestations of the disease.

NLM-DUO-A84 00031

AUTHOR SECTION

Y

Yager J: Asymmetry in monozygotic twins [letter] Am J Psychiatry 1984 May;141(5):719–20

Yamaguchi T see **Takenaka K**

Yamamoto H see **Kawakami Y**

Yang XD see **Wang C**

Yarfitz S see **Paigen B**

Yates JR, Mortimer G, Connor JM, Duke JE: Concordant monozygotic twins with bilateral renal agenesis. J Med Genet 1984 Feb;21(1):66–7
We report the unique observation of monozygotic twins concordant for bilateral renal agenesis.

Yiu-Chiu V see **Hartung RW**

Yoshikawa T see **Kawakami Y**

Yovich JL, Stanger JD, Grauaug A, Barter RA, Lunay G, Dawkins RL, Mulcahy MT: Monozygotic twins from in vitro fertilization. Fertil Steril 1984 Jun; 41(6):833–7
A case of identical twins following in vitro fertilization and embryo transfer (IVF -ET) is described. Two embryos were transferred, but it is apparent that only one implanted and subsequently divided in the early implantation phase to produce identical male twins within a monochorionic , diamniotic placental and membrane configuration. Additional marker studies provide an overall probability of less than 0.001 for dizygosity . There is unlikely to be any relationship between this event and the technique of IVF -ET.

Z

Zamel N, Leroux M, Vanderdoelen JL: Airway response to inhaled methacholine in healthy nonsmoking twins. J Appl Physiol 1984 Apr; 56(4):936–9
The variability of maximum expiratory flows is genetically determined, and the airway response to chronic cigarette smoking is also influenced by genetic factors. In nonsmoking nonatopic healthy individuals there is a wide variability of acute airway responses to bronchoactive drugs. The present study was designed to investigate whether this variability might also be genetically determined. We tested this hypothesis by measuring the threshold of airway response to inhaled methacholine using a partial flow-volume curve as the index of response in 10 monozygotic (MZ) and 10 dizygotic (DZ) healthy nonsmoking pairs of twins. Methacholine aerosol was given in doubling doses from number 1 (0.031 mg/ml) to number 11 (32 mg/ml). The mean threshold (+/-SD) for the MZ twins was dose 4.5 +/- 2.4 and for the DZ twins was 7.2 +/- 2.0 ($P = 0.0004$). No explanation could be found for the difference in mean threshold between MZ and DZ twins. The mean intrapair difference in threshold (+/-SD) for the MZ twins was 2.7 +/- 1.6 doubling doses and for the DZ twins was 2.4 +/- 1.8 ($P = 0.7$). Slope of dose response to methacholine and intrapair differences were not different between MZ and DZ twins. The present study supports the view that environmental factors are more important than genetic factors in determining the variability of acute airway responsiveness to bronchoactive drugs in healthy nonsmoking individuals.

Zeilmaker GH, Alberda AT, van Gent I: Fertilization and cleavage of oocytes from a binovular human ovarian follicle: a possible cause of dizygotic twinning and chimerism. Fertil Steril 1983 Dec; 40(6):841–3

Zemánková M see **Nevsímalová S**

Zettergren L see **Mårtensson G**

Zhang C see **Wang C**

Zilberman Z, Poulton DR: Identical twins with bilateral and unilateral clefts: a 20-year study. Am J Orthod 1984 Jul;86(1):14–24
A pair of monozygotic male twins are presented. One subject, with unilateral left complete cleft lip and palate, underwent lip surgery at 3 months and palate closure at 2 years 2 months. The second twin, with bilateral complete cleft lip and palate, underwent these operations at the same times. His lip was closed in two stages because of the severely forward positioning of the premaxilla, which was surgically set back at 4 years 9 months. Additional surgical intervention involved correction of his nose tip at 8 years 9 months. The findings suggest that surgical intervention of repositioning of the premaxilla in the bilateral cleft twin may have been responsible for the underdeveloped middle third of his face and also for the much shorter anterior lower facial height. In spite of these, this twin presents acceptable final facial and dental results.

Zionts LE, Osterkamp JA, Crawford TO, Harvey JP Jr: Congenital annular bands in identical twins. A case report. J Bone Joint Surg [Am] 1984 Mar; 66(3):450–3

Zorn R see **McKay M**

Zunzunegui MV see **Odenheimer DJ**

Zusman J see **Awotwi JD**

NLM-DUO-A84 00032