

Conjoined Twins : Parapagus Twins

Jaswir Singh, Anil Kumar Poonia

Department of Pediatrics, Government Medical College, Patiala, Punjab, India

INTRODUCTION

Conjoined twins are rarely born with a incidence rate of 1:50000 to 1:100000¹. Conjoined twins are more frequently female babies. Most common type of conjoined twins is thoraco-omphalopagus². Parapagus twins have body side by side with common trunk or abdomen. Parapagus twins borns with relative incidence of 0.5%³. We report a case of conjoined twins born by cessarian section.

CASE REPORT

28 Year old primigravida landed up with labour pains and underwent cessarian section for obstructed labour. She delivered conjoined female twins. Baby had two separate well formed head, common thorax and abdomen. Upper limbs are 2 in number and were well formed. Lower limbs were 3 in number of which 2 were well formed while 3rd one was located posteriorly and malformed and having syndactyly at big toe. Spine was separate in each twins. Anal opening was single. Baby have 2 set of external genitalia of which one was anterior to anal opening and well formed while second was posterior to anal opening and malformed. On auscultation single heart was found on right side. Baby had one umbilical cord and was normal.

On antenatal history mother had not taken any infertility treatment. Ultrasound done antenatly and described twin pregnancy with two seprate fetus.

After birth baby had respiratory distress and survived for 2 hours.



Correspondence: Dr Jaswir Singh, #5084, Urban Estate Phase I, 26 ACRE-C, ITBP Wall, Patiala PB 147002, Tel.: 0175 2281088, Mobile: 9815664208

DISCUSSION

Spencer classified conjoined twins which is widely accepted. According to his classification our case was classified as dicephalus parapagus twin⁴. Conjoined twins are always monochorionic and monoamniotic. They result when division of ovum occur after 13-15 days of fertilization ; either incomplete separation or complete separation with secondary fusion^{5,6,7}. Conjoined twins have variable organ fusion. Fused hearts with complex anatomy like right aortic arch, transposition of great vessels and two hearts with one malformed heart have been described^{7,8}. Two sets of lungs are usually present which may be underdeveloped and anomalous^{8,9}. The liver, pancreas, gall bladder, rectum and genitourinary tracts may be shared^{7,9}. Conjoined twins are more common in asian and African area¹⁰. Diagnosis of conjoined twins before birth allows practitioners to minimize injury by planning a suitable delivery. Therefore, careful ultrasound examination is recommended for all suspected twins¹¹. First or second trimester detection of conjoined twins enable obstetrician to counsel parents about potential termination , or about delivery and treatment options if pregnancy is continued.

REFERENCES

1. Spitz L, Kiely EM. Conjoined Twins. JAMA 2003; 289:1307-10.
2. Nelson Text Book of Pediatrics. 19th ed;553.
3. O'Neil JA, Jr, Holcomb GW III, Schnaufer L, et al . Surgical Experience with thirteen Conjoined Twins .Ann Surg 1988; 208: 299-312
4. Spencer R. Anatomic Description of Conjoined Twins: A Plea for Standardized Terminology. J Pediatr Surg 1996; 31: 941-944.
5. Quiroze VH, Sepulveda WH, Mercado M, Bermudez R, Fernandez R, Varela J. Prenatal Ultrasonographic diagnosis of thoracopagus conjoined twins. J Perinat Med 1989; 17: 297-303.
6. Machin GA. Conjoined twins: Implications for blasto-genesis. Birth Defects Orig Artic Ser 1993; 29: 141-179.
7. Spencer R. Conjoined twins: theoretical embryology basis. Teratology 1992; 269: 591-602.
8. Gilbert-Barnes E, Debich-Spicer D, Opitz JM. Conjoined twins :morphogenesis of the heart and review. Am J Med Genet 2003; 120: 68-72
9. Cunniff C, Jones KL, Jones MC, Saunders B, Shepard T, Benirschke K. Laterality defects in conjoined twins: implications for normal asymmetry in human embryogenesis. Am J med Genet 1998; 31: 669-677.
10. Shija JK, Matakere NJ, Massawe AW. The Conjoined Twins of Shinyanga, Tanzania: Case Report. East Afr Med J 1994; 71: 751-754.
11. Hammond DI, Okun NB, Carpenter BF, Martin DJ, Krzaniak S. Prenatal ultrasonographic diagnosis of di-cephalus conjoined twins. Can Assoc Radiol 42: 357-359.

Linagliptin

DRUG PROFILE

Mechanism of action: Linagliptin is a potent, selective, orally active, competitive, reversible and long-acting inhibitor of dipeptidyl-peptidase-4 (DPP-4). DPP-4 is an enzyme which is involved in the inactivation of the incretin hormones GLP-1 and GIP (glucagon-like peptide 1, glucose-dependent insulinotropic polypeptide). This membrane bound protease is expressed in many tissues including kidneys, liver, intestine, lymphocytes and vascular endothelial cells. A significant level of DPP-4 activity is also observed in plasma. By inhibiting DPP-4, linagliptin prolongs and enhances activity of the incretins glucagon-like peptide-1 (GLP-1) and glucose-dependent insulinotropic peptide (GIP), resulting in increased glucose-dependent insulin secretion, suppression of glucagon secretion and delay of gastric emptying and thereby to the maintenance of post-meal glycaemic control. Linagliptin binds selectively to DPP-4 and exhibits a > 10,000 fold selectivity versus DPP-8 or DPP-9 activity *in vitro*. **Pharmacokinetics:** The bioavailability of linagliptin is approximately 30%. High fat meal reduced C_{max} by 15% and increased AUC by 4%, but it is not clinically relevant. It may be administered with or without food. It is rapidly absorbed after oral administration, with C_{max} occurring after approximately 90 minutes and reaches steady-state concentrations within 4 days. With the therapeutic dose, steady-state C_{max} (11-12 nmol/L) and AUC (<150 nmol · h/L) are approximately 1.3-fold greater than after a single dose, indicating little drug accumulation with repeat dosing. It exhibits concentration-dependent protein binding in human plasma *in vitro* (99% at 1 nmol/L to 75-89% at >30 nmol/L) and has a large apparent volume of distribution, demonstrating extensive distribution into tissues. It has a long terminal half-life (>100 hours); however, its accumulation half-life is much shorter (approximately 10 hours), accounting for the rapid attainment of steady state. The main, pharmacologically inactive S-3-hydroxypiperidinyl metabolite accounted for approximately 17% of the total drug-related compounds in plasma. Linagliptin is eliminated primarily in faeces, with only around 5% of the oral therapeutic dose excreted in the urine at steady state. It potently inhibits DPP-4 (inhibition constant 1 nmol/L) and trough drug concentrations achieved with therapeutic dosing inhibit >80% of plasma DPP-4 activity, the threshold associated with maximal antihyperglycaemic effects in animal models. There are no clinically relevant alterations in linagliptin pharmacokinetics resulting from renal impairment, hepatic impairment, coadministration with food, race, body weight, sex or age. *In vitro*, linagliptin is a weak substrate and weak inhibitor of cytochrome P450 (CYP) 3A4 and permeability glycoprotein (P-gp) but not of other CYP isozymes or ATP-binding cassette transporters. **Indications:** Linagliptin is indicated as an adjunct to diet and exercise to improve glycaemic control in patients with type 2 diabetes. Linagliptin has been studied as monotherapy and in combination with metformin, sulfonylureas and pioglitazone; combination studies with insulin are ongoing at this time. **Dose:** 5 mg once daily taken with or without food and when used in combination with an insulin secretagogue, a lower dose of the secretagogue may be required. **Contraindications:** It is contraindicated in patients with a history of hypersensitive reaction such as urticaria, angioedema or bronchial hyperreactivity. **Warnings and precautions:** When it is used in combination with an insulin secretagogue (eg. Sulfonylurea) or with insulin, lower dose of the insulin secretagogues or insulin may be required to reduce the risk of hypoglycemia. **Drug interactions:** Rifampin decreased linagliptin exposure by inducing CYP3A4 enzyme or P-glycoprotein. **Use in specific situations:** a) Pregnancy- this drug should be used very cautiously only of clearly indicated; b) Lactation—It should be given cautiously; c) Elderly population- No dose adjustment is required in elderly subjects; d) Hepatic impairment- No dose adjustment is required; e) Renal impairment - No dose adjustment is required.

Compiled by: Prof. N.S. Neki