

Brief Communication

Cardiovascular risk factors in Saudi and non-Saudi diabetics

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Cardiovascular disease (CVD) is the leading cause of morbidity and death. Diabetes mellitus (DM) is closely associated with ischemic heart disease (IHD) and patients with DM and no previous history of IHD have the same risk for cardiac events as patients with previous myocardial infarction. Hyperlipidemia, hypertension, smoking and obesity are well known modifiable cardiovascular risk factors in both diabetics and non-diabetics.¹ This work aimed to evaluate the prevalence of CVD risk factors in diabetics in 2 different nationalities (Saudis and non-Saudis).

We studied diabetic patients attending in King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia, for follow-up from January 1999 to December 2001. Cardiovascular disease risk factors include hypertension (patient is known or has 2 consecutive readings >130 mm Hg systolic, 85 mm Hg diastolic), hyperglycemia (if the patient is known or with LDL >2.6 mmol/l, triglyceride >2.3 mmol/l, HDL <0.9 mmol/l for males and one mmol/l for females), obesity (defined as body mass index >30% kg/m²), smoking history (either active or 5 years ex-smoker) was recorded from the medical records of the study group. In addition, participant's age, sex, nationality, degree of blood glucose control (poor blood glucose control defined as the mean of the most recent 2 hemoglobin A1c (HbA1c) readings >9%), and duration of DM were recorded. The study group was divided into 2 groups according to their

nationality whether Saudis or non-Saudis and comparative analysis was made between them regarding the prevalence of CVD risk factors and degree of blood glucose control.

One thousand one hundred and fifty-five diabetic patients were studied. Thirty-five (3%) were excluded as they have missing values and the remaining 1122 were included in the study. Five hundred and forty-one (48%) were Saudis with male to female ratio of 1.3:1, while non-Saudis were 581 (52%) with male to female ratio of 1.1:1 (p 0.3). Four hundred and six (75%) were ≥45 years of age compared to 407 (70%) non-Saudis (p 0.06). Hypertension, hyperlipidemia, and smoking were common CVD risk factors in both Saudis and non-Saudis while obesity was less common in both groups. Both nationalities have poor blood glucose control (Table 1). Age was considered a risk factor for CVD in diabetics especially among individuals aged 45-74 years. The majority of our patients whether Saudis or non-Saudis was ≥45 years. It is well known that individuals with diabetes have a high risk of morbidity and premature death associated with the development of macrovascular complications especially among smokers. Smoking cessation is one of the few interventions that can safely, and cost effectively recommended for all patients. Data from the recent United Kingdom Prospective Diabetes Study² demonstrated that aggressive lowering of blood pressure was accompanied by reduction of macrovascular events. Recent studies have shown that CVD morbidity and mortality associated with DM can be considerably reduced through intensified treatment of hyperlipidemia.³ The incidence of coronary heart disease events is correlated to BMI. A rise in coronary events with increasing BMI over 8 years of follow-up from 31 events per 1000 at BMI <20 kg/m² to 72 per 1000 at BMI >30 kg/m² had been reported.⁴ Studies had shown that greater degree of hyperglycemia is associated with increasing CVD mortality in individuals with diabetes.⁵ Our study showed that CVD risk factors (smoking, hypertension, hyperlipidemia and obesity) and poor glycemic control are common in both Saudis and non-Saudi diabetics. Patients education regarding diabetes disease process, nutritional management, physical activity, weight loss, cessation of smoking, compliance to medication, glucose monitoring, prevention and detection of complications are of great importance. Another important issue is physician education regarding screening for CVD risk factors and initiation of early and aggressive treatment when indicated.

Table 1 - Comparison between Saudis and non-Saudis according to some variables.

Variables	Saudis n (%)	Non-Saudis n (%)	p-value
Hypertension	287 (53)	302 (52)	0.6
Hyperlipidemia	249 (46)	250 (43)	0.4
Obesity	114 (21)	110 (19)	0.3
Smoking	303 (56)	343 (59)	0.5
HbA1c >9%	384 (71)	383 (66)	0.06
Mean duration of DM (years ± SD)	8.9 ± 7.3	8.8 ± 7.2	0.2
HbA1c - hemoglobin A1c, DM - diabetes mellitus			

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Ectopic pregnancy in a teaching hospital in Sudan

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Ectopic pregnancy remains a major serious gynecological problem. Not only do women still die from the diseases, but a considerable number might never bear a living child and some cases might have a second ectopic pregnancy. The incidence of ectopic pregnancy is increasing, but the fatality rate is falling. Ectopic pregnancy is a serious gynecological problem. The incidence is increasing. This increment could be

Table 1 - Distribution of patients according to the symptoms of ectopic pregnancy.

Symptoms	n of cases	(%)
Abdominal pain	74	(84.1)
Amenorrhea	86	(97.7)
Vaginal bleeding	70	(79.5)
Vomiting	32	(36.3)
Syncope	20	(22.7)
Shoulder pain	18	(20.4)

explained mainly by better means of diagnosis, and a major proportion is attributed either to the increasing use of intra-uterine contraceptive device or to the rising incidence of pelvic inflammatory disease which follows the wake of the venereal diseases. Ectopic pregnancy produces a variety of symptoms, signs and masquerades as many other conditions. Ectopic pregnancy refers to all pregnancies where the gestational sac is implanted outside the normal uterine cavity. Cervical and interstitial pregnancy although within the uterus are considered as ectopic pregnancies. The study was designed to review the clinical presentation of ectopic pregnancy, evaluate methods of diagnosis, identifying the risk factors, describe the findings at laparotomy and estimate the incidence of the disease.

The study was conducted in Medani Teaching Hospital (MTH), Medani City, Sudan, during the period January 1997 to December 1999. The study was designed to make any patient presenting to MTH with symptoms and signs suggestive of ectopic pregnancy. All the above patients were admitted to the hospital for management. The history includes the age, residence, duration of marriage, parity, abortion, rhythm of the cycles and the date of the last menstrual cycle. The history also includes the use of intra-uterine contraceptive device, vaginal discharge, venereal disease and past history of laparotomy. Detailed history on symptoms of ectopic pregnancy were included. The clinical examination includes the pulse rate, blood pressure and palor. The chest and the cardiovascular system were examined. The abdomen is also examined for abdominal tenderness and evidence of internal bleeding. We always palpate for a pelvic-abdominal mass or adnexal mass. The cervix was inspected and proper bimanual examination was performed. The investigations include hemoglobin estimation, blood grouping and Rhesus, urine was analyzed and examined for pregnancy test. Some cases were subjected to transabdominal ultrasound. After laparotomy, all specimens were sent for histopathology.

Table 2 - Distribution of patients according to signs of ectopic pregnancy.

Signs	n of cases	(%)
Tenderness	78	(88.6)
Positive excitation	78	(88.6)
Adnexal mass	46	(52.3)
Guarding	36	(40.9)
Abdominal mass	22	(25)
Collapse	16	(18.2)

Ninety cases were studied in Medani Teaching Hospital. It was a prospective study. There are many similar studies; none of them was in Sudan. During the period January 1997 to December 1999. There were 16221 deliveries and 88 cases of ectopic pregnancies giving an incidence of 0.5%. This incidence is considered to be increasing world wise.¹

The mean age in the study was 28.6 years compared with 19.82 years in Nigeria.¹ Recent literature talks on a higher incidence with in vitro-fertilization and embryo transport. History of spontaneous miscarriage was found in 24/88 (27.2%). In the study of Hanik-Atrash et al² the incidence was 13.6 per 1000 pregnancies.²

The predisposing factors, which have been demonstrated in the study, were almost comparable with those found in a prospective study of Mitchell et al.³ The most important symptoms were abdominal pain (97.7%), short period of amenorrhea (84.1%) and vaginal bleeding (79.5%) (Table 1). These were comparable with other studies.⁴ The study also demonstrated that the most important signs were abdominal tenderness (88.6%), positive excitation sign (86.6%), and a palpable abdominal mass (52.3%) (Table 2). The usefulness of ultrasound in the study was confirmed by the fact that 81% were confirmed by ultrasound. The study showed that 91.1% of ectopic pregnancy were ruptured at the time of presentation, wherein the prospective study of Soyannwo⁵ the ruptured ectopic pregnancies were 81.1%.³ Diagnosis of silent ectopic is not always easy.

The most common site of ectopic pregnancy in the study was the uterine tube (82.9%). The ampulla is being the most common site (43.2%). In the study of Leach and Orly,⁴ the ampulla accommodated 78% of the cases. The maternal mortality caused by ectopic pregnancy in the study is 3.4%. In the prospective study carried in the Kingdom of Saudi Arabia, the maternal mortality was found to be 0.7%.⁵ This fact arises the importance of ectopic pregnancy as a cause of death in the study.

Ectopic pregnancy is a serious condition and is an important causes of maternal mortality. Almost all patients presented with ruptured ectopic pregnancy. The symptoms and signs play an important role in the diagnosis of the condition. The ultrasound is an important diagnostic tool in the diagnosis of ectopic pregnancy. The type of operation is either salpingectomy or salpingo-oophorectomy. Ectopic pregnancy should be suspected whenever one is faced with an acute abdomen. Surgery should not be delayed when there are enough evidences of ectopic pregnancy.

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Head and neck cancer in the Central region of Saudi Arabia

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Despite differences in natural history and response to treatment, head and neck cancers are usually reported together due to their epithelial origin and possible etiological relationship. These are common tumors reported in published series from different regions of this country.¹ We evaluated the prevalence and pattern of epithelial primary head and neck cancers in Al-Qassim region, Kingdom of Saudi Arabia (KSA). We analyzed the data of all histologically confirmed cases from the Departments of Oncology and Pathology at King Fahd Specialist Hospital (KFSH) and Prince Faisal Oncology Center (PFOC), Buraidah, KSA, from 1987 to 2000. We excluded cases of lymphoma (Hodgkin's disease and Non-Hodgkin's lymphoma), thyroid cancer, unknown primary and skin tumors. Specific anatomical sites included lip, oral cavity, palate, oropharynx, nasopharynx, larynx, nose or sinuses, salivary glands and other sites of the head and neck region. All cases were indexed by medical record number, name, age, sex, nationality, site of tumor and histopathology. We analyzed the frequency by site, age and sex and compared our results to the published data from other regions of KSA and international literature. Continuous variables were expressed in mean \pm SD. Statistical analysis was performed using 2 sample T test and chi-square test. P values of ≤ 0.05 were considered significant.

During the 13-years period (1987–2000), 2010 new patients with cancer were seen in KFSH and PFOC. Of these 135 (6.7%) had a primary in the above specified sites, 90 (90/135, 66.7%) were males and 45 (45/135,

Table 1 - Age and site distribution of head and neck cancer in Al-Qassim region.

Site	Age group									Total (%)
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	>80	
Lip							1	1		2 (1.5)
Tongue		1		2	3	4	1		2	13 (9.6)
Palate			1	1	3	1	1	1		8 (5.9)
Oral cavity				5	1	1	1		1	9 (6.7)
Salivary gland	1		1	1	1	1	1		1	7 (5.2)
Oropharynx	1				1	2	1			5 (3.7)
Nasopharynx										
Nose/nasal sinus		10	10	10	16	12	4	5		67 (49.7)
Larynx	1		1		1	2	2	2	2	5 (3.7)
Others		3	1		1	2	1	2		10 (7.2)
Total sites	3	14	14	19	28	25	15	11	6	135 (100)

33.3%) were females with a male to female ratio of 2:1. The mean age of patients was 47.7 (\pm 19.9) years (range 7-90 years), mean age of male patients was 48.3 (\pm 20.4) years (range 10-86 years) and of female patients 46.4 (\pm 19.0) years (range 7-90 years). The difference was not statistically significant ($p > 0.3$). Most of the affected patients belonged to the age group between 31-60 years (72/135 – 53.3%) (Table 1). Nationality was documented in 80 of our patients and among them 68 (85%) were Saudi and 12 (15%) were non-Saudi patients. Nasopharynx was the most frequent site affecting 67 of 135 patients (49.7%). The mean age of these patients was 43.6 years (\pm 17.45) lower than other sites (51.8 \pm 21.4 years; $T=2.48$, $p > 0.05$) and male to female ratio was 2:1. The least involved site was lip (2/135, 1.5%). Overall squamous cell carcinoma was the most frequent histopathology seen (61/135, 45.2%), however, undifferentiated carcinoma was most common in the nasopharynx (46/67, 68.7%; $\chi^2=4.46$; $p < 0.03$). Staging information was available in 56 patients (56/135, 42%) of which 36 (36/56, 64%) were presented with regional or distant metastasis.

The relative frequency of head and neck in Al-Qassim (6.7%) is lower than many other regions of KSA, 9.6% (Asir region) and 9% (Al-Baha region).^{2,3} The mean age of our patients (47.7 years), is lower than that from the Asir region² (55 years). The high index of squamous cell carcinoma of the head and neck region seen in different parts of the world has been linked to habits such as chewing of betel nuts, tobacco or ‘khat’ or shamma, ionizing radiation and host factors such as nutrition.³ Other factors, which cause field cancerization such as alcohol intake and smoking, also play an important role.⁴ Since the population in this region has been introduced to the habit of smoking rather recently, that may explain this relatively lower incidence.¹ This may also explain lower frequency of oral cavity cancer (9/135, 6.7%) in our series as compared to the national data, where malignant oral cavity cancers constitute 26% of all head

and neck cancer.⁵ We had a higher relative frequency of nasopharyngeal carcinoma (49.6%), occurring at a younger age (43.6 \pm 17.45 versus 51.81 \pm 21.87). The male to female ratio of nasopharyngeal carcinoma in our study is 2:1 which is not very much different from that of Asir region² (2:1.4). Nasopharyngeal cancer is frequently associated with Epstein Barr virus (EBV) infection. Epstein Barr viral titers, however, were not routinely examined in this series. The relatively younger age group as seen by us may point to an infective pathology. The majority of our patients, presented late in the course of disease, 64% of the staged patients had advanced loco-regional or distant disease. This might indicate either an aggressive nature of these tumors or delay in seeking medical care. This emphasizes the need for public awareness of warning signals of cancer and orientation of the primary care physicians in order to have a high incidence of suspicion. In addition the high relative frequency of nasopharyngeal cancer is noteworthy and demands further epidemiological study, particularly the role of an infective agent in its causation.

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Hypertension in type 2 diabetic patients

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Nowadays the enormously accumulating data has appreciated that diabetes and hypertension co-exist at a greater frequency than that the chance alone would predict. There are many pathological changes in diabetic patients that may lead to hypertension. Total body sodium is increased by 10% and further in presence of renal disease (and then plasma volume).¹ The excess of sodium is contributed to by impaired urinary excretion due to hyperinsulinemia, decreased renin activity and decreased response to atrial natriuretic peptide (ANP).¹ Studies also reported the presence of increased peripheral vascular resistance due to increased vascular responsiveness to vasoconstrictors such as adrenaline and angiotensin II.² Cell hyperplasia and hypertrophy within the arteriolar walls were reported in the diabetic patients due to increased cytosolic calcium ions and hyperinsulinemia.¹ Insulin may act as a trophic factor predisposing vessels to hypertrophy.² The resultant increase in the wall-to-lumen ratio leads to apparent hyper-reactivity of these resistance vessels to stress.² From the clinical standpoint, many studies were carried out on hypertension in diabetic patients investigated the association with factors such as gender, age, obesity and renal disease. The study of hypertension in diabetic patients is of useful impact on the practical management of diabetes. It was found that aggressive reduction of blood pressure (BP) of diabetic patients will lead to reduced rates and progression of renal and cardiovascular diseases.² In Sudan, there has been only one study that was carried out to assess the prevalence and the associations of hypertension in diabetic patients in 1995.³ That study reported a prevalence of 44% and positive correlation with obesity.³ Our present study aimed at investigating prevalence and associations of hypertension, in a consecutive series of diabetic patients, age, sex, obesity, duration and glycemia control of diabetes.

Our study was carried out in the referred clinics of Khartoum Teaching Hospital, the central hospital cited at Khartoum (the capital). It took 4 months (April-August 2001). The study population was the

consecutive adult diabetic patients seen by 2 of the authors. The criteria of inclusion were type 2 diabetes (according to the World Health Organization [WHO] criteria), being not known hypertensive before the onset of diabetes. One hundred healthy, age and sex matched individuals were taken as a control to our study. They were compared to the diabetic population in respect to weight and BP.

Through a questionnaire, we obtained data on the age, sex and onset, and duration of diabetes. The study required measurement of BP, assessment of glycemic control and determining of the body mass index (BMI) or Quetelet index. The BP was measured with the patient sitting or lying down, using a standard mercury sphygmomanometer. We used the WHO criteria to define hypertension (systole above 160 mm Hg and diastole above 95 mm Hg) on 2 successive visits. The Kortokoff phase V was used to define the diastolic end-point. The BMI was calculated by dividing the weight in kilograms over the square of the height (in meters). Those with BMI of ≥ 28 were considered obese. The glycemia control was determined by measuring the fasting blood glucose (FBG). Poorly controlled patients had FBG of more than 8 mmol/l. Of the 160 diabetic patients, 81 were males (51%). Their mean age was 53 ± 9.5 years for male and 49 ± 8.4 years for females, mean BMI was 25.3 ± 2.6 and the mean BP was 152 ± 10 mm Hg (systole) and 91 ± 11 mm Hg (diastole). In contrast to the diabetic group, the control group had mean BMI of 21.2 ± 2.2 and mean BP of 131 ± 9 mm Hg (systole), and 79 ± 11 mm Hg for diastole ($p < 0.005$). Hypertension was found in 64 of the diabetic patients (40%) and 20 (20%) of the healthy controls. The hypertensive diabetic group had a mean age of 55 ± 11.2 years, male to female ratio of 1.5:1, mean BMI 29.25 ± 5.20 , mean duration of diabetes 10 ± 5.2 years, mean FBG of 11.4 ± 2.31 mmol/l and mean systolic pressure of 161 ± 5 mm Hg and diastolic pressure of 101 ± 15 mm Hg. The normotensive diabetic group had a mean age of 46.5 ± 9.9 years, male to female ratio of 1.9:1, mean BMI 21.2 ± 2.91 , mean duration of diabetes 9 ± 4.3 years, mean FBG of 8 ± 2.2 mmol/l and mean systolic pressure of 122 ± 11 mm Hg and diastolic pressure of 75 ± 6 mm Hg. In comparison of the hypertensive to the normotensive diabetic group, there are statistically significant differences in age distribution, diabetic duration, mean BMI and mean BP ($p < 0.005$). The hypertensive subjects tended to be older, heavier, of worse glycemic control and of prolonged history of diabetes. Our study confirmed a high prevalence of hypertension among the type 2 diabetic patients (40%) that is as much as twice that in the non-diabetic subjects. This figure is similar to most of the African studies.³ Our study record a similar prevalence to the only previous Sudanese study, but it differs in finding a positive correlation with old age, poor control and prolonged duration of diabetes.³ The role of obesity was agreed upon by both studies.³ Unlike

type 1 diabetes, the prevalence of hypertension increased with age in type 2. Epstein⁴ found an increase of prevalence of hypertension from 20-40% in diabetic patients >50-year-old (with equal male to female ratio). Our study found a similar difference in our diabetic patients before and after 50-year-old. Since the type 2 diabetes affect those of >35-year-old, a possible role for a slow pathogenic mechanism initiated by insulin excess and resistance (common in such patients) may be suggested. The theoretical scientific data available, so far, does not exclude this possibility.¹ There is a significant role for poor glycemic control in causing hypertension. This is compatible with previous reports in the literature.⁵ This is also supported by the findings of the trials of the role tight glycemia control in prevention or delaying long-term diabetic complications, including hypertension. The association of obesity, type 2 diabetes and hypertension is well documented to the extent that the term "diabesity" is, sometimes, used to describe this association.⁶ This relationship may be not be valid for type 1 diabetes, but no evidence exist to suggest that obesity can protect from it. Going with other studies, we found that approximately half of our patients were obese. The common link between obesity and type 2 diabetes is insulin resistance and then excessive compensatory in insulin secretion to maintain normoglycemia. The resulting hyperinsulinemia, through some pathogenic mechanisms, causes hypertension.

In conclusion, our study indicated that hypertension is a common problem among our diabetic patients. This will adversely accelerate progression of vascular diabetic complications. The occurrence of hypertension, as we found, is significantly associated with old age, obesity, prolonged diabetic duration and poor glycemic control. We suggest to conduct large and controlled studies on the incidence and pattern of diabetic complications among the patients. Also badly needed, is a study on the best antihypertensive therapy for such patients. It would be useful if we investigate for the presence of rural or urban differences in the incidence of hypertension among rural diabetic patients. The dominance of physical activity, healthy traditional food and lifestyle in the rural areas may have desirable impact on both diabetes and hypertension.

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Intravenous patient-controlled analgesia for labor pain

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The relief of labor pain by pharmacological means entails a compromise between the provision of effective analgesia and avoidance of unwanted side effect to mother and child. Parenteral narcotic such as intramuscular (IM) Pethidine is often used, but both, the drug (Pethidine) and the technique (IM injection) are not suitable for labor pain. An opioid drug with a rapid onset and short half-life (such as Fentanyl) delivered by patient controlled analgesia (PCA) is better suited to labor pain.¹

We are reporting a first case from Kingdom of Saudi Arabia (KSA) that describes the successful use of Fentanyl intravenous patient-controlled analgesia (IV-PCA) for labor pain. The narcotic side effects related to Fentanyl for both mother and the newborn were negligible. A 25-year-old woman, with a body weight of 85 kg, requested for analgesia during labor. She was a full term pregnant, para-2, with unremarkable antenatal history. During previous labor, she received IM Pethidine, which caused her nausea and vomiting and did not provide adequate labor analgesia. This time she requested for alternative method of analgesia. Lumbar epidural or intravenous (IV) Fentanyl PCA was offered to her. After discussing with the anesthetist, she opted for IV-PCA. She was taught how to use PCA device and if required she could also supplement IV-PCA with inhalation entonox (50% N₂O: 50% O₂) analgesia. Midwife was also taught on IV-PCA and how to monitor the patient. A 60 ml (Terumu®) syringe was prepared with 10 microgram/ml of Fentanyl. Before starting IV-PCA she was asked to describe her labor pain as visual analogue score (VAS) (0 = no pain and 10 = worst pain she can manage). Patient's vital signs, frequency (contractions per 10 minutes) and force (mild, moderate, strong) of uterine contractions and cervical dilatation (in cms) was assessed by midwife one hourly and recorded on an IV-PCA form (Table 1). Through a dedicated IV line, PCA was commenced at the start of uterine contraction, with a bolus dose of 50 microgram of Fentanyl. The PCA device (PCAM model 5000) was set to deliver 2 mls (20 microgram Fentanyl) increment dose

Table 1 - Maternal monitoring during intravenous Fentanyl patient controlled labor analgesia.

Time (hours)	Pain score	Sedation score	Injections and attempts	Fentanyl (µg) used	Resp rate	Nausea and vomiting	Distress	Uterine contraction Frequency Force per 10 minutes	Entonox used	Heart rate	B/P	Cervix (cms)
16:15	7	0	0:0	0	16	0	1	3 Moderate	Yes	99	116/70	4
17:15	2	1	5:12	50* 100	18	0	0	4 Moderate	No	89	104/69	
18:15	2	2	8:14	160	16	0	0	4 Moderate	No	80	91/61	
19:15	7	1	8:31	160	18	0	1	4 Strong	Yes	107	114/84	8
19:45	8	1	4:24	80	20	0	2	4 Strong	Yes	96	118/80	baby delivered

*bolus, BP - blood pressure, Resp - respiratory

with the lockout interval of 6 minutes. There was no background infusion of Fentanyl. She was also monitored hourly for narcotic side effects (nausea, vomiting and sedation) and distress, which were recorded on severity scale (0=none; 1=mild; 2=moderate; 3=severe). Hourly, number of valid (injection) and premature demands (attempts) and amount of Fentanyl consumed were also recorded from the memory of PCA device. Drugs to treat these side effects (naloxone and stemetil) were readily available. Patient was also seen hourly by the anesthetist. Her labor progressed smoothly for 3.5 hours. Until the delivery of the baby, she effectively used IV-PCA only and required entonox during the last 45 minutes of labor. She delivered a live baby boy with one and 5 minutes Apgar score of 9 and 10. Total of 550 microgram of Fentanyl was used by the mother. A day after the delivery, mother was asked to give a score on the effectiveness of IV-PCA (0 = worst and 10 = best) and in the future would prefer IV-PCA for labor analgesia? She gave 8 to PCA and would prefer to use this technique in the future. Labor pain is different from other acute pains such as post-operative or traumatic pain. It is intermittent and increases in intensity with the progress of labor. Neuraxial analgesia such as epidural, when performed properly, is the most effective method of labor analgesia. Intra-muscular Pethidine is commonly used to provide analgesia during labor. The inadequacy of Pethidine for labor analgesia is well documented.² Moreover, it is also associated with many undesirable effects to both the baby and the mother. Yet, it is the most common method of providing labor analgesia in European countries.³ Fentanyl possesses characteristic, which makes it an excellent choice of narcotic for PCA in labor. Fentanyl is more lipophilic with rapid onset and short duration of action. It lacks active metabolites, which could depress

the neonate. In contrast to Pethidine, Fentanyl is associated with less nausea and sedation in the mothers'.⁴ As compared to IM Pethidine, IV-PCA (technically) and Fentanyl (pharmacokinetic-pharmacodynamically) are more suitable to provide labor analgesia.¹ Effectiveness and safety of Fentanyl IV-PCA in labor has been established.⁵ Cases have been reported where in the presence of contraindication to the epidural labor analgesia, Fentanyl IV-PCA was used successfully.⁶

This communication is the first from KSA, where Fentanyl IV-PCA was used to provide labor analgesia. The mother in this report received adequate analgesia during first stage of labor. This is evident from pain score, which was 7 just before commencement of IV-PCA, came down to 2 during subsequent 2 hours. She was not in distress, did not request for entonox and effectively utilized PCA. However, from the time cervical dilatation reached 8 cms until the delivery of the baby, IV-PCA alone could not provide her acceptable analgesia. During this period, she was moderately distressed with VAS of 7-8, made attempts that are more desperate within lockout interval and requested for additional analgesic (entonox). There was no nausea vomiting or respiratory depression to the mother. She was mildly drowsy during IV-PCA utilization. Though she consumed 550 microgram of Fentanyl in the last 3.5 hours of labor, the baby had good Apgar score and did not require any ventilatory assistance. Over all she was well satisfied (8 out of 10) with IV-PCA and would prefer this in future. This case has encouraged us to offer this technique to laboring women who do not want epidural analgesia. The limiting factors in the wide spread use of IV-PCA are availability of resources, awareness and education in the obstetric population and personnel looking after them.

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Erratum

In manuscript "Isolation of *Salmonella paratyphi A* from a patient with nephrolithiasis", Saudi Medical Journal 2003; Vol. 24 (4) 406-408, the title should have appeared as "Isolation of *Salmonella paratyphi A* from a patient with nephrolithiasis"

Erratum

In manuscript "Sandhoff disease in an extreme preterm baby with bilateral syndactyly", Saudi Medical Journal 2003; Vol. 24 (4) 419, the figure should have appeared as follows:

