Profile of Patients Attending SKIMS Srinagar during 2011 Amarnathji Yatra

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ABSTRACT

BACKGROUND: Amarnathji cave, situated at an altitude of 3,888 m, about 141 km from Srinagar, is one of the holiest shrines in Hinduism. The annual pilgrimage to Amarnathji is a very demanding endeavor requiring strenuous physical efforts, and poses many health hazards to the pilgrims, especially elderly and those with chronic illnesses.

OBJECTIVE: To study the pattern and outcome of illness in Yatris attending SKIMS during Amarnathji Yatra 2011.

METHODS: This prospective study was carried during 45 day Yatra period, from July 2011 to August 2011. All the patients referred to SKIMS were recruited for the study.

RESULTS: Of the 185 patients received in SKIMS during the mentioned yatra period, 100 were discharged on emergency-OPD card on the same day, and the remaining 85 patients (48 men) were admitted. Age of the patients ranged from 15 to 85 years with a mean of 51.49 ± 15.49 (median, 53 years) with majority in the age group of 45 to 65 years. AML was the main diagnosis at arrival (in 16.5%) followed by Poly-trauma (15.3%); Head injury (11.8%); High Altitude Pulmonary Edema (HAPE) (10.6%); Gastro-enteritis (10.6%); Diabetes (10.6%); COPD (7.1%); Stroke (5.9%); Poisoning (3.5%); and Others (8.2%). Of the 85 admitted patients, 5 patients expired with a mortality of 5.9% (95% CI, 1.9 – 13.2). 4 (80%) patients who died were aged ≥ 65 years compared to 14 (17.5%) of those were discharged ($p < 0.001$).

CONCLUSION: Yatris attending Amarnathji yatra face many health related challenges. A pre-yatra checkup of all yatris planning for Amarnathji yatra should be made mandatory for all. Elderly pilgrims (> 65 years) and those with any morbidity who are undertaking for yatra by foot/surface transport should be well-informed about the potential health hazards of the yatra. JMS 2012; 15(2):170-73

Key words: Amarnathji yatra, Amarnathji cave, high altitude pulmonary edema, acute myocardial infarction, death, health hazard

Amarnathji cave is a Hindu shrine situated at an altitude of 3880 meters above sea level. Yatri's (pilgrims) have to trek a distance of 14000 feet, as no vehicular transport is available right up to a cave except a helicopter service during yatra period for ferrying emergency patients and VIPs. The Yatra usually lasts for 45 days, mid summer, every year.

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During the yatra period, Lakhs of devotees visit the cave, posing a great challenge to the authorities for providing adequate civic amenities like space, sanitation, medical care facilities, food hygiene. As a consequence and because of close contact of yatris in camps and other temporary makeshift accommodations, Yatris are prone to many illnesses including respiratory and gastrointestinal infections, food poisoning, road traffic accidents, and high altitude pulmonary edema (HAPE).

Because of high altitude, rough terrain, harsh weather, lack of adequate healthcare infrastructure and suitable transport, the yatri's especially trauma patients, are difficult

to manage and all the needy patients are not able to avail existing medical facilities. Because pilgrims come from different parts of country with different morbidity profiles. additional challenges are posed due to language barrier and lack of social support. As the Yatri's have to perform same rituals and duration of yatra is short, there is always overcrowding and mass movement from one place to another. During the Yatra period, Department of Health, Govt. of Jammu and Kashmir usually establishes special medical camps en-route to Amarnathji cave. The patients not manageable in these camps are referred to different Hospitals in valley. Sher-i-Kashmir institute of medical sciences is a super specialty teaching university hospital catering to all the three provinces of Jammu and Kashmir State. Understandably, most of the Amarnathji Yatra patients requiring super-specialty care are referred to this institute for treatment. This study was conducted to analyze the pattern of patients attending SKIMS during Amarnathji Yatra 2011, with respect to demographic profile, diagnosis at arrival and outcome of their illness. This should help better planning of patient care in future and also educate the stakeholders in managing unique problems faced by Yatri's during Amarnathji yatra.

Methods

This prospective study was conducted at SKIMS; a 630-bed multispecialty hospital in the Valley of Kashmir. All pilgrims of Amarnathji yatra referred to SKIMS between July and August 2011 were recruited for the study. Baseline demographic data was collected from the Accident & Emergency Department (A&E) whereas the followup data was collected from progressive patient care areas. However patients who were directly referred to the Department of Endocrinology for Diabetic ketoacidosis or hyperglycemic state are not included in the study. The patients were followed up till they were discharged from the hospital. The data was entered in a specially designed 15 point Performa, and then keyed into Microsoft Excel 2007. The data was analyzed by SPSS version 19.0, using standard analytical techniques.

Results

Of the 185 patients received in SKIMS during the mentioned yatra period, 100 were discharged on emergency-OPD card on the same day (Table 1). The remaining 85 patients were admitted, which included 48 men (56.5%) and 37 women (43.5%). Age of the study subjects ranged from 15 to 85 years with a mean of 51.5 ± 15.5 (median, 53 years). Age and gender distribution of these patients is shown in Table 2. As shown in the table, majority of patients were in the age group of 45 to 65 years. There was no statistically significant difference in the age between men and women (48.65 ± 15.87 vs. 55.19 ± 14.35 , $p = 0.053$). Acute myocardial

TABLE 1. Demographics of the study population.

Demographic characteristic	Number	Percentage (%)
No of patients received	185	100
No of patients discharged on card	100	54.1
No of patients admitted	85	45.9
- Recovered	77	90.6
- LAMA	2	2.4
- Discharge on request	1	1.2
- Expired	5	5.9

LAMA: Left against medical advice

TABLE 2. Age and sex distribution of the admitted patients (n=85)

Age group (years)	Men (n=48)	Women (n=37)	Total (n=85)
< 25	3 (6.3%)	2 (5.4%)	5 (5.9%)
25 > 45	13 (27.1%)	10 (27.0%)	23 (27.1%)
45 > 65	25 (52.1%)	19 (51.4%)	44 (51.8%)
≥ 65	7 (44.6%)	6 (16.2%)	13 (15.3%)

Chi-Square (Pearson): 0.06, df: 3, $p > 0.9$ (non-significant)

infection (AMI) was the most common diagnosis at arrival, observed in 16.5% of the admitted patients (Figure 1). Other illnesses encountered at I agnostics were poly-trauma (15.3%); head injury (11.8%); high Altitude Pulmonary

Figure 1. Showing diagnoses at arrival of admitted patients

Edema (HAPE) (10.6%); Gastro-enteritis (10.6%); Diabetes (10.6%); COPD (7.1%); stroke (5.9%); poison(g (3.5%); and others (8.2%). Of the 85 admitted patients, 5 expired due to different illnesses, stroke being the commonest. Thus the mortality rate in admitted patents was 5.9% (95% CI, 1.9% to 13.2%) (Table 3). Comparative analysis of demographic factors between those who survived and those who died in the hospital is shown in Table 4. Mean age ($\pm$ SD) of those who died was significant higher than those were discharged alive (66.2 ± 27.7 vs. 50.6 ± 14.2 , $p: 0.028$). Four (80.0%) of admitted patients who died were aged 65 years or older compared to 14 (17.5%) of those were discharged ($p < 0.001$).

TABLE 3. Showing diagnosis on arrival and mortality rate of admitted patients

Diagnosis	HAPE	AMI	Poly trauma	Diabetes	Head injury	Stroke	COPD	Gastro-enteritis	Poisoning	Others	Total
Received	9	14	13	9	10	5	6	9	3	7	85
Improved	8	12	13	9	10	3	6	9	3	7	80
Expired	1	2	-	-	-	2	-	-	-	-	5
Mortality rate (%)	11.1	14.3	-	-	-	40.0	-	-	-	-	5.90

HAPE – High Altitude Pulmonary Edema, AMI- Acute Myocardial Infarction, COPD- Chronic Obstructive Pulmonary Disease

TABLE 4. Comparison in demographic features between those who survived and those who died in the hospital

Characteristic	Discharged (n=80)	Died (n=5)	P value
Age			
Mean(±SD)	50.6 ±14.2	66.2 ±27.7	0.028*
> 65 years	14 (17.5%) ⁴	(80.0%)	0.001 [†]
Female gender	34 (42.5%)	3 (60.0%)	0.444
Diagnosis at arrival			
Medical illness	58 (72.5%)	4 (80.0%)	0.714
Trauma / Accident	22 (27.5%)	1 (20.0%)	

*statistically significant; † Highly significant

Discussion

This pilot study was of short duration, limited to patients referred to our hospital during one yatra period. However, it gives a good reflection of pattern of illnesses during Amarnathji yatra season. It displays the demographic characteristics of the pilgrims and shows that elderly yatris have higher morbidity and mortality particularly those aged 65 years or higher. Two most common co-morbidities encountered at arrival to the hospital were coronary heart disease and diabetes. However, this study does not include data of patients who were directly referred to the Department of Endocrinology of this institute for Diabetic ketoacidosis or hyperglycemic state.

Amarnath cave is a famous shrine in Hinduism located in the Indian state of Jammu and Kashmir. It is dedicated to Shiva. The cave is situated at an altitude of 3,888 m (12,756 ft), about 141 km (88 mi) from Srinagar, the capital of Jammu and Kashmir and reached through Pahalgam town.¹ The shrine forms an important part of Hinduism, and is considered to be one of the holiest shrines in Hinduism. The cave is surrounded by snowy mountains. The cave itself is covered with snow most time of the year except for a short period of time in summer when it is open for pilgrims. An annual pilgrimage is made to the Amarnath cave by lakhs (hundreds of thousands) of Hindu devotees on challenging mountainous terrain to see an ice stalagmite formed inside the cave.¹ The history of Amaranth dates back to the times of Arayaraja (34BC to 17&CE) who used to spend his summer here worshipping an, ice lingam, that was then located in the region that was beyond the forest. The city also finds its

reference in the Rajataringini, where the city was mentioned as Amareshwara. The city has also been mentioned by Kalhana and its sequel, Rajataringini that talks about the records of Kashmir.

As the cave is situated at a high altitude, the terrain is difficult and the weather conditions are often harsh, the yatra poses a significant challenge to the physical fitness and endurance of the devotees. It is no surprising that majority (27%) of the patients referred to our hospitals were related to trauma and accidents, i.e., head injury and poly-trauma occurring in 23 of our 85 admitted patients. Trauma during pilgrimage is a real surgical problem which deserves more attention. In one study in Saudi Arabia, orthopedic and neurosurgical cases were the most common surgical cases during the Hajj period.² Understandably, the yatra is not suitable for elderly patients and those with co-morbidities, especially those with higher cardiovascular risk. Similar health problems have been reported in other pilgrimages like Hajj. In one such study on Hajj pilgrims, it was found that 54% elderly more often develop serious illnesses with higher death rates.³ Therefore, it is not surprising to find that most common cause for referral to our hospital in the yatra patients was acute myocardial infarction. For that reason, every potential Yatri should be particularly screened for cardiovascular disease during pre-yatra health check.

Apart from trauma and AMI, another common reason for referral in our patients was high altitude pulmonary edema (HAPE) which is again self explanatory. Of course Individual susceptibility to HAPE is the most important determinant for its occurrence.⁴ Symptoms associated with HAPE can be incapacitating fatigue, chest tightness, dyspnoea at the slightest effort, orthopnoea, and cough with due to haemoptysis in an advanced stage of the disease pink frothy sputum. The hallmark of HAPE is an excessively elevated pulmonary artery pressure (mean pressures of 35 and 55 mm Hg), which precedes the development of pulmonary oedema. Elevated pulmonary capillary pressure and protein- as well as red blood cell-rich oedema fluid without signs of inflammation in its early stage are characteristic findings. Furthermore, decreased fluid clearance from the alveoli may contribute to this non-cardiogenic pulmonary oedema.⁴

Other common illness observed in our patients included diabetes, stroke, COPD, gastroenteritis and poisoning. The cases of food poisoning, which we received

during yatra period, were due to poor food hygienic practices followed in the over-congested camps during yatra period. Similar health problems have been reported in other pilgrimages like Hajj.⁵⁻⁹ In one such study on Hajj pilgrims, it was found that common co-morbidities in pilgrims included COPD, hypertension and Diabetes Mellitus, and all these contributed to higher morbidity and mortality. Five of our admitted patients died with a mortality rate of 5.9%. Most of these cases died due to HAPE, AMI and Stroke. Causes of death reported in other studies on pilgrims include trauma, pneumonia, heart attack and stroke.³ None of our patients died due to trauma but it is quite possible that many pilgrims must have died due to accidents and falls on the spot or on way to hospital and hence would not be reported in our study.

Medical illnesses constituted 73% of our admitted patients. Yusuf *et al*,⁵ in his prospective epidemiological study done at King Abdul Aziz Hospital Madina Al-Munawara during the 1993 Hajj season tried to identify the medical problems of pilgrims. Out of 23806 pilgrims who attended the Hospital, 773 (3.25%) were admitted as a medical case. Mean age of admitted cases was 60.4 ± 11.4 years. Pneumonia (45.8%), diabetes mellitus (20.7%) and ischemic heart disease (15.3%) were the most common diseases reported among these pilgrims. Respiratory, cardiovascular and metabolic diseases affected 74%, 57% and 23 % of pilgrims. There were 57 deaths with a mortality rate of 7.4%. Myocardial infarction was the most common cause of death; old age, poor physical fitness, multiple diseases, neglect in continuous treatment of known chronic diseases and failure to seek early medical advice were the major factors responsible for morbidity and mortality. Our results are not very different from those reported in these studies except the high frequency of HAPE which is quite understandable.

About the implications of this study, we would like to suggest that, i) Pre-yatra checkup should be done before

registering yatra for Amaranth pilgrimage; ii) those with co morbidity should be allowed to visit the Holy cave only after special travel arrangements are made for them, taking due cognizance of the medical illness; iii) there should be upgradation of health infrastructure on way to cave, and iv) to avoid overcrowding and mass movement, the number of yatra should be limited as per facilities available, particularly those related to sanitation and other civic amenities en route to cave.

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