

Cardiovascular Diseases as A Major Cause of Deaths Among Landless Insured Persons Under Indira Kranthi Padhakam of Prakasam District in Andhra Pradesh: A Verbal Autopsy Method

K. Valleswary¹, B.T. Rao²

¹(Principal, Rajiv Gandhi Institute of Medical Sciences Ongole / NTR University of Health Sciences, Andhra Pradesh, India)

²(Assistant Professor, Department of Community Medicine, Rajiv Gandhi Institute of Medical Sciences, Ongole/ NTR University of Health Sciences, Andhra Pradesh, India)

Abstract:

Background: Society for Elimination of Rural Poverty (SERP) was established by the Government of Andhra Pradesh (GOAP) to facilitate poverty reduction through social mobilization and improvement of livelihoods of rural poor in Andhra Pradesh. It was observed by CEO of project that about 70 thousand deaths were registered per annum among the insured individuals in Andhra Pradesh Verbal autopsy is an investigation of train of events, circumstances, symptoms and signs of illness leading to the deaths.

Objectives: 1. To investigate the causes of deaths among the insured persons of Prakasam District who were enrolled under DRDA. 2. To identify the risk factors commonly associated with the most common causes of deaths.

Study Design: An observational cross sectional study.

Study Area: Community based and rural villages of prakasam District.

Study Participants: Nearest, close and blood relatives of 223 deceased insured persons.

Methodology: DRDA- IKP delegated to the RIMS Medical College ,Department of Community Medicine to investigate the causes of deaths of insured persons during the year 2012-2013. By simple random sampling, an effective sample turns out to be 223 from 28 mandals of the Prakasam District. A standard verbal autopsy tool and pretested questionnaire was used and interviewed the nearest relatives to get the information about the causes of deaths. Collected data was analyzed by descriptive statistical method.

Results: Out of total 223 deceased individuals males were 80.7% and 19.3% were females. About 66% of the deceased persons were fall between 25 to 50 years of the age. The most common cause of the death among the deceased insured persons was due to circulatory cardiovascular diseases like heart attack and heart disease 40.8%, it was followed by vehicular road traffic accidents 8.52% and then Renal failure and kidney diseases 8.07%. It was noticed that out of 180 males 52.7% were smokers and 18.3% were chewed tobacco at least five years in life. About 30% were alcoholic and 38.33% were consumed non vegetarian diet regularly.

Conclusions: Effective regular screening, health checkups about non communicable diseases will be required for these land less working groups after the age of 30 years in Primary health centres. Comprehensive plan and strategy has to be adopted meet the all the health problems and issues of these workers at the village level.

Keywords: Aam Admi Bhima Yojana, Abhaya Hastham, Cause of deaths, Heart disease, Registrar General of India, SERP, Verbal autopsy tool.

I. Introduction

Rapid epidemiological transition is occurring in urban as well as rural India and there was a reversal disease patterns in the country from communicable diseases to non communicable diseases¹. There are so many factors which determine the health of the human being and good healthy life style requires proper promotion of the health. Evidence based studies were indicating that now a days trend of non communicable diseases were increased rapidly^{2,3}. India is lacking authentic data on causes of deaths and heart attacks are not only killing the people in urban areas but also in the rural areas^{4,5}. Heart diseases already emerged as a major cause of death in rural areas, and we don't have specific programmes to deal those conditions. As per Million death study in urban areas 32.8% deaths occur because of heart ailments, while this percentage in rural areas is 22.9%⁶. In Tamilnadu 35,000 deaths were investigated in 2006 to find out exact cause of deaths in one study, and overall 42% deaths in India are accounted for non communicable diseases⁷.

The Society for Elimination of Rural Poverty (SERP) was established by the Government of Andhra Pradesh (GOAP) to facilitate poverty reduction through social mobilization and improvement of livelihoods of

rural poor in Andhra Pradesh⁸. SERP is implementing Indira Kranthi Padhakamm (IKP) in all the 1098 rural Mandals of 22 rural districts in A.P. The vision of SERP is to enable every poor family in rural Andhra Pradesh to come out of poverty and to attain high productivity with improved skills then utilize resources to full potential and gainful access to the services. SERP works on a comprehensive multi dimensional poverty alleviation strategy by focusing equally on the livelihoods, value chain and human development index (HDI).

Government of Andhra Pradesh introduced pension and insurance scheme for Indira Kranthi Padhakam self help group women in 2009 to provide income security in their old age called Abhya Hastham and its aim was to provide security to all enrolled SHG with dignity in their old age. Aaam Admi Bhima yojana is as social security for rural landless household, was launched in 2nd October 2007. Under this scheme the head of the family or one earning member in the family of such household is covered. The premium of Rs: 200 per person per annum is shared equally by the central government so that the insured person has to pay no premium. The member to be covered should be aged between 18 and 59 years. This scheme would be administered through the LIC and the benefits under this scheme are for natural death-Rs: 30,000, On death due to accident / on permanent total disability due to an accident –Rs 75,000 and on partial permanent disability due to an accident-37,500⁸. The society for rural elimination of poverty, a Andhra Pradesh rural reduction poverty project implementing community run insurance schemes covering about 1 Crore individuals in 70 lakh households under various health schemes for the poor. It was observed by CEO of project that about 70 thousand deaths were registered per annum among the insured individuals in Andhra Pradesh which is of a serious concern⁹.

In this regard Chief Executive Officer (CEO) of the Society for Elimination of Rural Poverty and the Director of Medical Education (DME) of Andhra Pradesh have been passed instructions to the Director and Professor and HOD of Community Medicine, RIMS Medical college, Ongole to investigate the causes of deaths among insured members under various insurance schemes being implemented by community with support of the rural development in Prakasam district. The District Collector and Magistrate of Prakasam District has also taken a special interest and directed the Project Director, District Rural Development Agency to support the Department of Community Medicine to commence the study of investigation of causes of deaths among the landless insured members under various insurance schemes.

During the last 60 years, verbal autopsy methods have been evolved in developing countries to know about the population mortality and as well as to study specific conditions and diseases causing the mortality. Verbal autopsy is an investigation of train of events, circumstances, symptoms and signs of illness leading to the deaths through an interview of relatives or associates of the deceased. These methods have been utilized worldwide with an aim of supplementing mortality information¹¹. This study was aimed at to assess the following objectives:

1. To investigate the causes of deaths among the insured persons of Prakasam District who were enrolled under DRDA
2. To identify the risk factors commonly associated with the most commonest causes of deaths

II. Materials And Methods

A field based observational study among the poor socio economic status insured persons of the Prakasam district was conducted by the Department of the Community Medicine, RIMS Medical College with support of District Rural Development Agency (DRDA). This study has been conducted in the 28 mandals out of total 56 of the Prakasam District. It was conducted over a period of six months from July to December 2013 to investigate and find out various major illnesses and diseases causing the deaths. The Project Director District Rural Development Agency, Prakasam district Ongole provided all types of the support to Department of Community Medicine especially in provision of the data related to deaths, logistic support, vehicle support and relevant financial support for planning and conduction of the study. In this process Professor and Head of the Department Community Medicine, Health staff from Medical College and Staff belong to DRDA were also involved in the process of investigation and also while taking the details about the death of individuals. APM and BM of DRDA department were actively involved and supported in the process of investigation.

A list containing 2044 insured deaths in 2012- 2013 were provided by DRDA to RIMS Medical College Ongole, and it was noticed from the existing given total data that maximum 61 deaths among occurred the insured persons in Naguluppapadu mandal followed by J. Panguluru (57), Korisapadu (55), Parchuru (53), Maddipadu (52) and Marutu (50). As per the instructions and guidelines by state authorities a simple random sample survey was conducted and considering a 10% of the total insured deaths of the district a sample size 223 were taken for verbal autopsy investigation. Villages and Mandals where the death rates were high were given importance while collecting the sample for this study. In the process of sampling ten or more insured

expired cases were fallen under Chirala, Naguluppapadu, Ongole, Santhanuthalapadu, Talluru, Tanguturu and Yaddanapudi Mandals and highest number of 15 deceased cases were from the Ongole Mandal. Insured sample deaths were representing from the all insured schemes like Aam Admi Bhima Yohana (AABY), Abhaya Hastham (AH), Mahatma Gandhi National Rural Employment Guarantee scheme(MG NREGS) and Employment Guarantee scheme (EGS) under DRDA Prakasam district. This sample of deaths are also representative of Coastal sea belt mandals like China Ganjam, Vetapalem, Kothapatnam, Chirala Rural, Ulavapadu, Singarayakonda and Tanguturu where most of the fishermen communities were residing in the district.

The practice of the filling of the questionnaire was done by the mock method and the pre-test was carried out before starting of the study. All the staff those who were involved in this study were briefed about the objectives and methodology of this survey. Techniques need to be adopted while conducting the study were also explained to them. A standard Registrar General of India (RGI)/ Centre for Global Health Research (CGHR)- Verbal autopsy Proforma was used to collect the detailed information about the deceased individual. A SRS- Verbal Autopsy Form 10 C for adult deaths; 15 years or older was used. Confidentiality was maintained at the time and after the investigation and data and relevant documents were kept in a safe and secure place which were not accessible to others. In this process spouse or blood related relative or nearest relatives were asked about the sequences of events and also about details of narrative history which leading to this death. Gross root level DRDA agents were supported in identifying the household of death cases and also helped in asking the questions in local language Telugu¹⁰.

Data Analysis was carried out by using the basic statistics and descriptive methods. Questionnaire had the structured section composed of series of check boxes and free text section in which a narrative description of the events leading to death were recorded. Outcome factors were studied in comparison with independent factors.

III. Results

A total of two hundred and twenty three deaths were investigated to which 74.4% were female respondents and 35.6% were male respondents who have provided the detailed information. Out of total 223 death cases for 117 (52.46%) respondents were wives have been given the particulars, in 24 (10.76%) cases husbands were given the details, where as in only single case neighborhood person has given the information. Among all the respondents 132 (59.2%) were illiterate and 28 (12.5%) had been completed 10th class and above and only six (2.7%) respondents were studied up to the graduation. One forty two respondents were belonging to Hindu religion where as 44 were Christians and only 13 were come under Muslim religion. Out of total respondents 20 were below 25 years age, 42 were above 50 years and 161 (72%) were between 25 to 50 years of age. The mean age of the respondents was 40.77 years. The respondents were lived and present with the 201 deceased individuals at the time of the death.

Out of total 223 deceased individuals males were 180 (80.7%) and 43 (19.3%) were females. Only two individuals were below 25 years age, and 74 were above the 50 years of the age and mean age of the individuals was 42.12 years. About 66% of the deaths persons were fall between 25 to 50 years of the age. Only 6 individuals studied more than 10th standard and 135 (60.5%) were illiterate and not attended any regular Government or private schools It was observed that the most common cause of the death among the deceased insured persons was due to circulatory cardiovascular diseases like heart attack and heart disease (40.8%), it was followed by vehicular road traffic accidents (8.52%) like two wheeler, Auto, Car and Heavy truck accidents, and then Renal failure and kidney diseases (8.07%). Cerebral stroke and related causes (5.38%), Jaundice and related causes, Malaria and other causes of fever, cancer, diabetes and hypertension, TB and HIV were also causing the deaths significantly among the insured persons (Table-1).

All the infectious diseases together contributed for the more than 7% of deaths. This cause of death study revealed that deaths due to non communicable diseases had been increased all over the district. Most of the deceased individuals were labourers; about 57.4% were involved in the non agriculture labour work and daily wage labourers. About 27.3% were involved in the agriculture labour work. The daily wage earners mainly involved in the road side work, stone crushing and tobacco grading in the small scale and big scale industries. It is very astonishing to know 7.1% of deceased people were not involved in any type of the work and sitting ideally at home. Very few people were involved in the business and other salaried work (Table-2). Among the total deaths 138 were occurred at their resident homes and about 31 were taken place in nonresident homes at relative houses. Only 3.58% deaths were happened in the District hospital, 6.27% were in private hospitals, this was also clearly evident that 5.82% deaths were taken place on the way before reaching to the

hospital. This study has been revealed that among the expired persons 42.6% were smokers and 15.04% were chewed tobacco for the last five years. Twenty four percent of the individuals consumed alcohol on regular basis. It was existing practice in the district that 62.3% doctors did not mention about the diagnosis on prescription slips and in death certificate of the diseased patients.

It was noticed that out of 180 males 52.7% were smokers and 18.3% were chewed tobacco at least five years in life. About 30% were alcoholic and 38.33% were consumed non vegetarian die regularly. Out of the 180 male deaths, 80 (44.4%) individuals died because of acute heart related disease and the problems. Risk factor analysis was carried out among these 80 individuals; it was found that 51.25% and 21.25% were exposed to smoking and tobacco chewing respectively at least for five years. About 26.25% of the individuals exposed to alcoholism and about forty percentage of the people consumed pure non vegetarian diet (Table-3).

Some of the qualitative observations from field investigator that most of the deceased individuals physically, social and also psychologically got disturbed and not maintaining the proper health. Usually for any health problems they contact local rural medical practitioners and also traditional faith healers in their village or nearby villages. They never had contacted for the frequent regular health checkups to the doctors. Overall observation that the deceased individuals were involved in one or other mean of the labour work and belong to poor socio economic status and unable to run the family effective manner and their purchasing capacity is very low.

IV. Figures And Tables

Table-1: The Commonest causes of deaths among land less insured persons

S. No	Cause of Death	Number (223)
1	Heart attack and Heart disease	91 (40.8%)
2	Vehicle road traffic accidents	19 (8.52%)
3	Renal failure and kidney disease	18 (8.07%)
4	Cerebral stroke and related causes	12 (5.38%)
5	Jaundice and Liver diseases	11 (4.93%)
6	Fever , Typhoid and Malaria	11 (4.93%)
7	Cancer	07 (3.1%)
8	Diabetes and Hypertension	06 (2.69%)
9	Tuberculosis	06 (2.69%)
10	TB+ HIV	03 (1.34%)
11	HIV	03 (1.34%)

Table-2. Occupation of deceased patients

S.No	Occupation	Number (%)
1	Agriculture labourers	61(27.3)
2	Non Agriculture labourers and daily wagers	128(57.4)
3	Cultivators/ Farmers	3 (1.3)
4	Non worker	16(7.1)
5	Professionals and salaried	6(2.6)
6	Business	3(1.3)
7	Others	4 (1.8)

Table-3: Risk factors analysis among the adult male deaths due to heart diseases

S.No	Exposure to the risk factor for at least for 5 years	N=80
1	Tobacco smoking	41(51.25%)
2	Tobacco chewing	17 (21.25%)
3	Alcoholism	21 (26.25%)
4	Consumption non vegetarian diet	32(40.0%)

V. Discussion

Life styles of population across the world have changed dramatically in 20th century. These changes have been brought about by a number of developments in science and technology. Cardiovascular diseases are leading causes of premature mortality in India.

One of the study revealed that cardiovascular causes were responsible for 36% of causes of deaths. Mortality due to cardiovascular disease problems such as ischemic heart disease and cerebrovascular accidents increased in people above 40 years of age. Cancer, respiratory diseases and digestive disorders were the second, third and fourth leading cause of death respectively. These diseases of affluence linked to the poor eating habits, physical activity, Obesity, tobacco smoking, alcohol consumption are becoming increasingly common in the developing world ¹¹. In our study 66% of the insured deaths were happened between 25 to 50 years age group

One million death study by Prabhath and Jha has revealed that about 25% deaths in the age group of 25-69 years occur because of heart diseases⁶. The proportion of the deaths caused by heart disease is highest in south India- 25% and lowest in central region-12%. Other causes due to respiratory diseases (10.2%), T,B (10.1%), Malignant tumors- 9%, digestive-5.1% and diarrhoeal diseases- 5%, Malaria-2.8%. In our study also it was revealed that high percentage (40.8%) of deaths was occurred due to heart disease and related complications. In our study malignancies contributed 3.1% of the insured deaths.

As per SRS 2001- 2003 out of all the deaths 42% were due to NCDs and the leading cause of deaths is cardiovascular diseases (19%)¹². and a Haryana based study also revealed that 47.6% deaths were due to non communicable diseases¹³. Cause of deaths in rural adult population of North India using verbal autopsy tool was done by Palnival etal between 2002 to 2007 revealed that 61% of deaths were occurring among the males and 59% among those 60 years. The leading cause of deaths were disease of the respiratory system - 18.7%, circulatory system-18%, infectious causes and other external causes each account for 15% of the total deaths followed by neoplasms-4 %¹⁴. As per our study non communicable diseases were responsible for 52.1% deaths among the insured deaths of Prakasam District. In this study it was also revealed that all the infectious diseases together contributed for more than 7% of deaths.

Non communicable diseases caused 51% of total adult deaths, communicable diseases caused 42% and injuries were responsible for the 6% of the deaths. Overall frequent alcoholic intake is 12% and tobacco consumption was 7% were highly prevalent among the deceased individuals-¹⁵. This study has been noticed that among the expired persons 42.6% were smokers and 15.04% were chewed tobacco for the last five years. Twenty four percent of the individuals consumed alcohol on regular basis in the last five years. Vehicular accidents were second (8.52%) major leading cause of deaths among the insured persons noticed in our study.

The circulatory diseases were the commonest leading causes of deaths (32%) , second was injury and external causes of mortality contributing to 13% and the 4th and 5th causes of deaths were cancers -7% and Respiratory diseases -5%¹⁶. Out of the total adult deaths 29% were due to CVDs, 10.3% were because of accidents, 9% due to cancer, 8.7% due to Pulmonary TB and 4.6% due to the renal failure¹⁷. Chronic Kidney disease and renal failure was found to be third leading cause of deaths in these lands less persons which needs detailed further evaluation. Prevalence of tobacco consumption including chewing and smoking were 45% among males. Smoking was observed in 20% and tobacco chewing in 30% of male decedents. While only 6% female decedents smoked and 10% chewed tobacco. Tobacco consumption appears to be major contributing factors in deaths due to circulatory diseases and malignant diseases in India-¹⁸. Our study revealed that out of 180 males 52.7% were tobacco smokers and 18.3% were chewed tobacco at least five years in life and about 30% were alcoholics.

A similar study conducted in Guntur district revealed that 80% the respondents are closely related to the diseased. Predominance of life style diseases-52% followed by infectious diseases -35% and accidental deaths-12%. Acute Myocardial infraction is the most predominant cause of deaths followed by viral fevers, Pulmonary TB, HIV and Cerebral stroke-¹⁹. A similar kind of study conducted by Joshi etal revealed that out of total insured persons 74% were males, 90.33% deaths were occurred between 31-59 age group. Among the total adults 53% were alcoholics, 49% were smokers and 15% were involved in tobacco chewing. The most common causes for deaths were parasitic diseases (23.66%) and circulatory diseases (23.66%) followed by accidents 19.6% and neoplasms were -7%²⁰.

Cardio vascular diseases burden of India is expected to double in the next decade. The findings highlight the need for continuing interventions strategies against to combat non communicable diseases. In depth analysis will be required further to evaluate the risk factors which are causing the heart problems. Trend of renal failure and kidney disease has been increased in this district. Exploratory studies may require finding out the reasons for the various chronic problems among rural labour working population to prevent the deaths.

VI. Conclusions

Cardiovascular disease was found to be the major cause of deaths in landless insured persons in Prakasam district. Cardiac care will be expensive for the rural landless insured persons, there is need to find out various ways and means to tackle this problem in this mostly illiterate public. . There is a need to raise the specific awareness about the expected and possible hazards and risks due to Tobacco smoking and chewing, chronic alcoholism to the agricultural labourers and non agriculture daily wage labourers. Effective regular screening health checkups about non communicable diseases will be required for these working groups after the age of 30 years in Primary health centres. Comprehensive plan and strategy has to be adopted meet the all the

health problems and issues of these workers at the village level in order to prevent occurrence and reducing the burden of the most commonly occurring non communicable diseases.

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