Summary

Dementia is a gradual deterioration of brain functioning that affects judgment, memory, language, and other advanced cognitive processes caused by several medical conditions or by the abuse of drugs or alcohol that cause negative changes in cognitive functioning (Scharfetter, 1980; Kolb and Brodie, 1982; Heston, 1983; Durands and Barlow, 2000; Martin, Elaine, and David, 2000).

Dementia has its essential features e.g. decrement or deterioration in intellectual functioning. Memory impairment; deterioration of language; impaired motor functioning, sensory functioning, and comprehension; failure to recognize or identify objects; and disturbance in executive functions are the symptoms which appear in dementia. Dementia is not a single disease itself but it is a syndrome with cluster of behavioural symptoms (Rebok and Folstein, 1993). Patients with dementia show increasingly marked deficits in abstract thinking, the acquisition of new knowledge or skills, visuospatial comprehension, motor control, problem solving, and judgment (Strub and Black, 1988). Personality deterioration and loss of motivation accompany these other deficits. Normally, dementia is also accompanied by impairment in emotional control and in moral and ethical sensibilities (Albert, Feldman, and Wills, 1974).

There are many types of dementia based on casual factors. First type is progressive dementia, which includes cortical, sub-cortical, mixed dementia subtypes. Second type is potentially static type dementia that includes toxic, infectious, miscellaneous dementia. Potentially reversible dementia is the third type, which includes systemic illness, deficiency states, endocrine disorders, drug toxicity. Another type of dementia is pseudodementia, which includes depression subtype.

There are two most common subtypes of dementia, i.e. Alzheimer's dementia and multi-infarct dementia. Alzheimer's disease is the most common disease found in elderly. It accounts 50-60 percent of all cases of dementia. The second most common form of dementia is multi-infarct dementia (vascular dementia). It is accounting for about 20 percent of all dementia cases.

The Alzheimer's disease is characterized by an insidious progression of dysfunction that increases in frequency and severity. It is estimated that Alzheimer's
disease affects about 3% of all people between ages 65 and 74, about 19% of those between 75 and 84, and about 47% of those over 85 years (Johansson, 1991).

The second most common type of dementia is multi-infarct dementia, which is a sub-type of vascular dementia. It is characterized by a cerebrovascular accident or stroke. It is estimated that 10-20% of all dementia cases are caused by blood vessel narrowing (Kay, 1995).

There are some chemicals which can play an important role in treatment of dementia by reducing the inactivation of the neurotransmitter acetylcholine and thus potentiate the cholinergic neurotransmitter, which in turn produces a modest improvement in memory and goal-directed thought. These include donepezil, rivastigmine, galantamine (Heston, 1983). Tacrine treatment is also an effective treatment of Alzheimer if used in the proper content of clinical guidelines (Lykotos, Corazzine, Steel, and Koraus, 1996). ACTH4-9 (Galliard and Varey, 1979), vasopressin (Gold, Weingartner, Ballenger, Goodwin, Post, 1979), and velnacrine (Antuono, 1991), also have been found to play vital role in the treatment of dementia.

But these chemical substances can be harmful particularly if the use is long term leading to slower heart rates, fainting episodes, dizziness, nausea, sedation, drowsiness, sleep disturbance, and weight loss (Bartus, Dean, Beer, and Lippa, 1982). Therefore, in recent years, focus on plant research, has increased all over the world and a large number of evidences have been collected to show the immense potential of medicinal plants used in various traditional systems.

In one of the pharmaco-epidemological survey carried out by Karandikar, Pandit, and Kulkarni (1997) in adults over 60 years of age, it was revealed that about 47% of the elderly use herbal drugs. The main reason for usage of herbal drugs is the belief that these have lesser side effects.

The World Health Organization (WHO) estimates that about 4 billion people of the world population currently use herbal medicines for their primary health in one or the other way (Farnsworth, Akerele, Bingel, Soejarta, and Eno, 2003).

A lot of Ayurvedic medicines for cognitive enhancement are being marketed which have an important role in brain functioning, these include Brahmi, Ginkgo biloba, Huperzia seratta, Acetyl-L-carnitine, Colistrinin, Shankhapushpi and so on. Brahmi is a
popular cognitive enhancing herbal medicine (Dubey et al., 1994; and Limpeanchob, et al., 2008). A lot of work has been done on Ginkgo biloba, Huperzia Seratta, Acetyl-L-carnitine, and Colistrinin, which actually shows a contradictory evidence (Zhang et al., 1991; Xu et al., 1995; Kanowski et al., 1996; Le Bars et al., 1997; Maurer et al., 1997; Xu et al., 1999; Montgomery et al., 2003; Bilikiewicz et al., 2004; Scripnikov et al., 2007; Dodge et al., 2008; Van et al., 2008; and Yancheva et al., 2009).

Another popular herbal cognitive enhancer is Shankhapushpi. There is although not much, but some research work, conducted to find out its role in cognitive enhancement (Sharma et al., 1965; Sharma, 1966; Singh and Mehta, 1966; Chaturvedi et al., 1966; Mudgal et al., 1972; Mudgal, 1975; Priyanka et al., 2004). Although these studies are sparse, yet these are indicative of cognitive enhancing properties of Shankhapushpi. Similarly, some studies are available that indicate Shankhapushpi to be an anxiety reducing (Singh et al., 1977; Shukla, 1979; Indurwade et al., 2000; Shaughnessy, 2002; Cerevenka et al., 2006) and depression reducing herb (Singh, et al., 1977; Dhingra, et al., 2007). Therefore, it was thought worthwhile to try Shankhapushpi as an agent to treat dementia.

**Problem:**

“To investigate the effect of Shankhapushpi on Dementia Rating and Quality of Life amongst the patients of Senile Dementia of Alzheimer’s Type (SDAT) and Multi-infarct Type (MIT).”

**Objectives:**

1. To assess the effect of Shankhapushpi on dementia rating amongst the patients of senile dementia of Alzheimer’s type (SDAT) and multi-infarct type (MIT).
2. To assess the improvement in Quality of life (QoL) amongst the patients of these two types of dementia as a result of administration of Shankhapushpi.
3. To assess the duration dependent effect of Shankhapushpi on dementia rating and Quality of Life of these two types of dementia patients.
Hypotheses:

1. Administration of Shankhapushpi would lead to a reduced rating of dementia.
2. Administration of Shankhapushpi would lead to an enhanced quality of life (QoL) amongst dementia patients.
3. Both of the above effects would enhance as a result of lengthened duration.

To test the hypotheses, a double-blind, pre-test, placebo-controlled parallel group design was undertaken in a form of 2 x 2 factorial. A sample of total 80 patients (40 of each type; control n = 20, experimental n = 20) was administered either Shankhapushpi powder or placebo for a duration of 4 months. The assessment was done with the help of Dementia Rating Scale-2 (DRS-2) and Dementia Quality of Life Instrument (DQoL). The patients were assessed three times, i.e. firstly in the starting, then after 2 months, and then after 4 months administration of the herbal medicine.

As the first hypothesis of the study predicted that, ‘administration of Shankhapushpi would lead to a reduced rating of dementia’. The F-values of DRS-2 Total scores after 2 and four months being significant across treatments support this. A consistency was observed in the effect of Shankhapushpi after two months and four months administration on dementia. The herbal medicine Shankhapushpi led to an improvement in both types of dementia. The more improvement was observed in SDAT patients than MIT patients.

While making a deep look on the various subscales of DRS-2, it was found that except the construction and memory dimensions of DRS-2, all other dimensions showed significant improvement due to administration of Shankhapushpi both durations i.e. after 2 months and 4 months.

Second hypothesis of the research predicted that, “administration of Shankhapushpi would lead to an enhanced quality of life (QoL) amongst dementia patients.” It is observed in total scores of DQoL, Shankhapushpi improved the quality of life both dementia types after 2 and 4 months. Here also, the more improvement was in
SDAT patients after both durations as like the DRS-2 total scores It indicates that the dementia related poor quality of life can be got rid of, by Shankhapushpi administration.

While analyzing the various subscales of DQoL, it was found that Shankhapushpi improved self-esteem, positive affect, feelings of belonging significantly. But it was also found that negative affect also increased because memory played important role in remembering the negative emotions and the administration of Shankhapushpi improved the memory, and so by improving memory, the negative affect is also increased. But sense of aesthetics was not improved significantly due to administration of Shankhapushpi.

Third hypothesis predicted that the improvement in DRS-2 and DQoL would improve as a result of lengthened duration. For SDAT patients Initiation/Perseveration and Conceptualization improved after 4 months. For MIT patients, Attention and Initiation/Perseveration showed significantly higher means after 4 months than after 2 months. For two subscales of Construction and Memory neither the group of SDAT nor MIT improved as a result of lengthened durations. This shows that duration of Shankhapushpi affects the different abilities in different ways. Some go on improving further, and others do not. But overall position on dementia can further improve, with a lengthened duration of Shankhapushpi. For DQoL, the total scores of SDAT did not differ, but the total score of DQoL after 4 months in MIT patients is significantly higher than the total score after 2 months.

To conclude, it can be said in a general term, that Shankhapushpi was found to improve the dementia condition and also the quality of life of SDAT and MIT patients.