CHAPTER III

CONCEPTUAL FRAMEWORK, RESEARCH QUESTIONS AND RESEARCH OBJECTIVES

3.1 Conceptual Framework

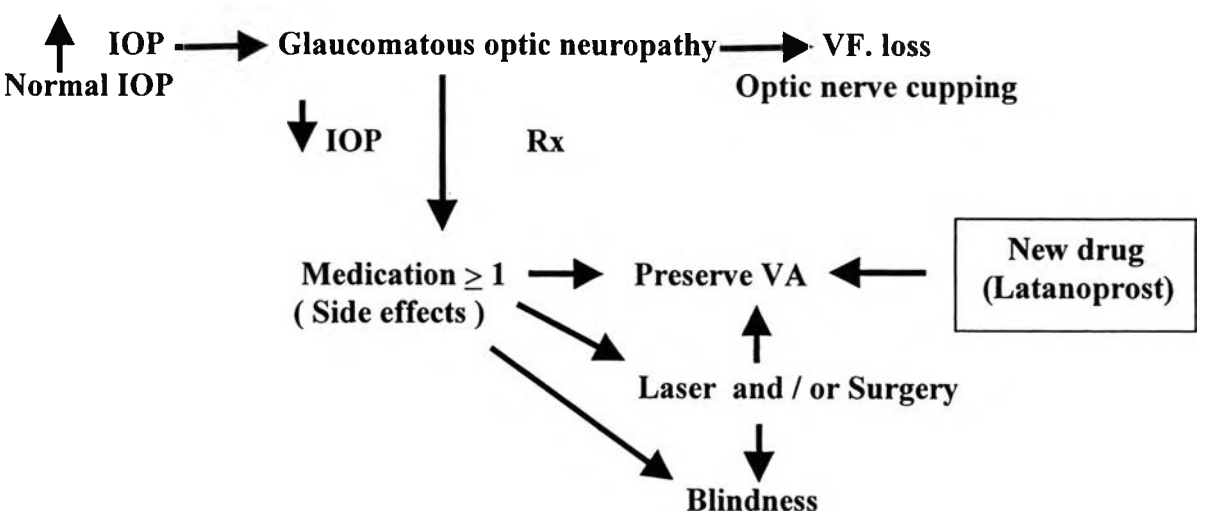

Fig. 3.1 Conceptual framework of the study

3.1.1 Operational Definitions

1. Open – angle glaucoma: As the name implies, this occurs in eyes with a deep anterior chamber and an open anterior chamber angle.

1.1 Primary open angle glaucoma : There are 3 criteria.

1. An IOP > 21 mmHg in at least one eye

2. An open, normal appearing anterior chamber angle

3. Typical glaucomatous visual field and/or optic nerve head damage

1.2 Ocular Hypertension: an elevated pressure for which there is no apparent cause, but who has normal optic nerve head and visual field.

1.3 Pseudoexfoliation glaucoma : one type of open angle glaucoma.

2. Studied patients are those with uncontrolled IOP with timolol : IOP more than 22 mmHg but less than 30 mmHg.

- "IOP > 22 mmHg" because in general, we define glaucoma as IOP > 21 mmHg.

- "IOP < 30 mmHg" because if IOP is higher than 30 mmHg, there is very little chance that it can be controlled with one drug

or two combination drugs in this study. (Three drugs or other modalities of treatments may be required.)

3. Study drugs

3.1 Latanoprost (13,14-dihydro-17-phenyl-18,19,20-trinor-$PGF_{2\alpha}$- isopropyl ester) provided by Pharmacia was used at a concentration of 0.005%, Xalatan®.

3.2 Pilocarpine 2%: Isopto Carpine®, Alcon

3.3 Timolol 0.5% : Timoptol ®, Merck Sharp & Dohme

4. Comparing effectiveness of IOP reduction between latanoprost and pilocarpine with timolol :- from extensive debate with knowledgeable clinical experts, thus we use $\overline{X}_1 - \overline{X}_2 = 2$ mmHg in this study.

5. Multi-site study : Multi-site and multi-center studies are the studies that undertaken by more than one institution and perform the same study, the same procedure on the same protocol. The difference between the two types of study are the role of investigators in each site and the scientific accountability and responsibility. In multi-site studies, the investigators at the site do not participate as co-investigators of the study, they are merely carrying out the study (e.g. recruiting subjects, treating subjects and/or following subjects). On the other hand, in a

multi-center study, the investigators at the sites are involved as co-investigators in the planning of the study protocol and procedures, are scientifically responsible for the study results, and participate in manuscripts and other dissemination activities. In this study we use multi-site study.

3.2 Research Questions

Primary Research Question

In patients with inadequately controlled IOP with timolol alone, can latanoprost monotherapy lower IOP, at least 2 mmHg more than the combination of pilocarpine and timolol therapy ?

Secondary Research Questions

1. What is the success rate of treatment (number of patients who reached target IOP≤ 15, ≤18, and ≤21 mmHg) in each treatment group?

2. What is the response rate of treatment (number of patients whose IOP reduction from baseline ≥10%, ≥20%, ≥30% and ≥40%) in each treatment group?

3. Are the ocular and systemic side effects in latanoprost group less than those in pilocarpine and timolol group?

4. Which drug has more cost effectiveness?

3.3 Research Objectives

3.3.1 General Objectives

1. To determine the effectiveness of new antiglaucoma drug in treating open–angle glaucoma or ocular hypertension.

2. To assess the ocular and systemic side effects of that new drug.

3. To evaluate cost effectiveness of that new drug.

3.3.2 Specific Objectives

1. To compare the effectiveness in intraocular pressure reduction between latanoprost monotherapy and pilocarpine with timolol in open-angle glaucoma and ocular hypertension.

2. To find the success rate of treatment (number of patients who reached target IOP≤15, ≤18 and ≤21 mmHg) in each treatment group.

3. To find the response rate of treatment (number of patients whose IOP reduction from baseline ≥10%, ≥20%, ≥30% and ≥40%) in each treatment group.

4. To compare the systemic and ocular side effects between the two groups.

5. To find the cost-effectiveness evaluation of both treatment groups.

3.4 Hypothesis

Latanoprost monotherapy can lower IOP at least 2 mmHg more than the combination of pilocarpine and timolol, in patients with inadequately controlled IOP with timolol alone.