出國報告（出國類別：開會演講）

2018 年第 27 屆亞洲藥學國際會議
出席論文發表返國報告書

服務機關：國軍桃園總醫院
姓名職稱：林宗坤 上校主任
派赴國家：菲律賓
出國期間：107 年 10 月 24 日至 10 月 27 日
報告日期：107 年 10 月 31 日

摘要：

「第 27 屆亞洲藥學聯合會大會(27th Federation of Asian Pharmaceutical Associations，FAPA) 」是亞洲地區針對亞洲各國每兩年舉辦一次的藥學聯合大會，主要由日本、韓國、菲律賓、泰國、中國、台灣與澳洲等國家所共同參與。本屆主題為「藥師力挺全球目標：創造超越健康的價值，Pharmacists for the Global Goals: Creating Value Beyond Health」，共有 24 個會員國 1800 位亞洲藥師與會，其中有 120 人來自台灣。亞洲藥學會的願景是要成為世界藥學組織的領頭羊，引導亞洲藥師及各國藥學會，達成專業卓越，並貢獻所學，保障藥品安全、有效、用得到、買得起，以確保醫療成效最佳化。

在菲律賓主辦單位的精心規劃之下，亞洲各國藥師們均歡欣的參與盛會。職在陽明大學進修公共衛生研究所的周老師指導之下，以「全國性人口為基礎探討使用高效度 statin 藥品與降低骨鬆性骨折的世代研究 High-Potency Statins But Not All Statins Decrease the Risk of New-Onset Osteoporotic Fractures: A Nationwide Population- Based Longitudinal Cohort Study」及「探討台灣高血脂病人使用降血脂藥品 Statin 與發生骨質疏鬆風險的關係 Long-term effect of statins and risk of new-onset osteoporosis in the Taiwan cohort study」的臨床報告投稿，經審查後分別獲邀口頭論文發表與海報論文的殊榮。此外，本次會議之議程安排有多元化且內容豐富的議程，對於醫院藥師而言是非常難得的學習機會。同時，本次會議除了發表口頭專題論文，也與他國學者進行學術交流，充分吸取醫學新知，對本職學能之精進獲益甚大。

關鍵字：亞洲藥學會、藥師、FAPA

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壹、出席目的

27th Federation of Asian Pharmaceutical Associations (FAPA) (第 27 屆亞洲藥學聯合會大會) 是亞洲地區針對亞洲各國每兩年舉辦一次的藥學聯合大會，主要由日本、韓國、菲律賓、泰國、中國、台灣與澳洲等國家所共同參與。會議參與人員主要為從事藥學教育工作者、醫院藥師、社區藥師和各藥學公會人員，今年已經是舉行第 27 屆的會議，主辦國菲律賓是亞洲藥學聯合會大會第一屆的主辦國，今年是菲律賓第五次舉辦，也是 FAPA 所有國家中舉辦最多次的國家。第 27 屆亞洲藥學會（FAPA）年會於 24 日至 27 日在菲律賓國際會議中心 Philippine International Convention Center (PICC)舉辦，主題為「藥師力挺全球目標：創造超越健康的價值」(Pharmacists for the Global Goals: Creating Value Beyond Health)，共有 24 個會員國 1800 位亞洲藥師與會，其中有 120 人來自台灣。主要分為三天研討會的內容，分別為(1) Regulation- Addressing challenges of integration and collaboration(規範: 整合與合作的對應挑戰)，(2) Access- Addressing challenges of inequity and service delivery（連接: 不公平與服務傳送的對應挑戰），(3) Innovation- Addressing challenges of discovery and evolution（創新: 發現與革新的對應挑戰）。會議中共有 8 個領域的場地分別舉行主題討論，當然也包

含了海報論文展示區與口頭論文發表給與會者自由選擇參加。

王文甫會長是第27屆FAPA亞洲藥學聯合會大會的主席，他是台灣藥師，由台灣藥師擔任國際藥師組織的會長實屬不易，王文甫會長在擔任這個組織的會長期間，非常努力推動亞洲各國家間的醫藥合作，獲得各國一致的好評。為了參加這場盛會，台灣藥師都提早一天到馬尼拉，駐菲代表徐佩勇昨晚還出席了台灣藥師聯誼晚會。徐佩勇讚揚說：「台灣藥師專業受肯定，並走出台灣，促成台灣加入國際醫藥法規協和會(ICH)，讓台灣在世界藥學領域佔有一席之地，受到國際重視。」王會長說，菲律賓是台灣的鄰國，台灣有許多方面可以幫助菲律賓，特別在醫藥衛生方面的發展。食藥署陳副署長特別在台灣藥師聯誼晚會上頒獎給王文甫，感謝他對台灣及醫藥衛生的貢獻，也期許台灣更多的藥師能發揮藥學專才，為台灣及世界貢獻所能。由於本屆是王文甫會長最後的任期，因此台灣藥師前往與會共同參與的人有將近120位藥師非常踴躍，藥師公會全聯會古博文理事長更親自帶團體參加，職就是與全聯會團體一同與會，另外，衛福部食藥署陳副署長也帶著技正前往與會，台灣藥學會理事長李志恆教授也前往參加。

王文甫會長在大會開幕典禮上致詞說：「亞洲藥學會的願景是要成為世界藥學組織的領頭羊，引導亞洲藥師及各國藥學會，達成專

業卓越，並貢獻所學，保障藥品安全、有效、用得到、買得起，以確保醫療成效最佳化。」亞洲藥學會是亞洲最大的藥學組織，會長 4 年一任。王文甫會長特別強調，因應近期亞洲發生的天災，亞洲藥學會也將成立災防救助委員會。衛生福利部食品藥物管理署副署長陳惠芳也來到馬尼拉，從嚴重急性呼吸道症候群（SARS）及八仙塵爆事件，分享台灣防災經驗給亞洲各國。

亞洲藥學聯合會大會(FAPA)，其實有一點類似 Federation International Pharmaceutical (FIP, 世界藥學大會)，參與這種藥學大會除了發表研究成果之外，其實還有一項看不見的重要目標：聯繫與各國藥學重要人物的交流，建立台灣藥師與衛生組織在國際上的能見度。舉例來說，世界藥學大會(FIP)就是世界衛生組織 World Health Organization (WHO)中的一個會員組織，在今日台灣仍無法實際參與世界衛生組織各項議題與運作的此刻，積極參與相關醫學或藥學的世界大會其實扮演著相當程度的重要性，將可以避免台灣在這世界村中被邊緣化。此外本次會議之議程安排多元化且內容豐富的議程，對於藥師而言是非常難得的學習機會。本次參與國際藥學會議，除了發表口頭專題論文，同時可以與他國學者進行學術交流之外，更有充分吸取藥學新知的難得機會。

貳、會議過程

議題安排如下：

第一天大會主要內容：

1. Registration
2. Opening Ceremony
3. Keynote Lecture: Pharmacists for the Global Goals: Creating Value beyond Health，由台灣出身的美國吳文成教授演講 (Dr Wenchen Kenneth Wu)
4. Awarding Ceremony for FAPA Awardees- FAPA Ishidate Awards，本屆有台灣的得獎者，台北榮總藥學部張豫立部主任。
5. Plenary Session 1 – REGULATIONS – Addressing challenges of integration and collaboration(規範: 整合與合作的對應挑戰)
6. Welcome Reception

第二天大會主要內容：

1. Plenary Session 2 – ACCESS – Addressing challenges of inequity and service delivery
2. 分組研討會Parallel Sessions，分為1.Hospital and Clinical Pharmacy Section，2.Pharmacoepidemiology & Pharmacoeconomics Section(值口頭報告演講的領域)，3. Scientific Section，4. Legislation, Regulatory Science and Pharmacopeia Section。

第三天大會主要內容：

分組研討會Parallel Sessions，分為1.Industrial Pharmacy and Marketing Section，2.Pharmaceutical Education Section，3.Community Pharmacy Section，4.Administrative, Social Pharmacy and Ethics Section

本次大會演講者均是目前相關藥學領域的菁英學者。職很榮幸同時入選口頭論文與海報論文發表，並全程參與議程，對本職學能之精進獲益甚大。此外，職所發表之論文內容於會中受到與會學者的肯定，足見台灣臨床藥物流病的研究已經提昇至國際級水準。本次大會的演講課程個個都很精彩，題目都很吸引人，雖然職都很想聽講，但時間有限，也只能挑自己比較有興趣的演講來聽。其中我比較感興趣是有醫院與臨床藥學方面的題目。其中今年獲得大會最高榮譽獎項的台北榮總藥學部主任張豫立藥師，演講有關優良藥師執業規範（Good Pharmacist Practice, GPP）在FAPA訓練與合作，這是近年來世界藥學會重要發展項目之一，而亞洲藥學會基金會（FAPA Foundation）王文甫藥師從2012年開始，在台灣成立GPP國際訓練中心，並提供開發中國家藥師獎學金來台接受訓練，課程到今年邁入了第7個年頭，由亞洲藥學會基金會主辦、台灣藥學會、台灣年輕藥師協會以及台北榮民總醫院共同協辦，與會者來自蒙古、印尼、泰國、巴基斯坦、越南、巴布亞紐幾內亞、菲律賓、寮國、尼泊爾、緬甸以及柬埔寨共計11國以

及17位藥師，其執業領域分布於醫院、社區藥局、學校以及政府機關。課程內容包含目前醫院藥學的現況、醫師藥師的專業角色、藥物傳遞、無菌製劑製備以及臨床藥事服務介紹及參訪最後再進行小組討論，主要在台北榮總進行。除了訓練課程，也安排了衛生福利部食品藥物管理署之參訪，並由代表介紹台灣藥事管理系統以及藥品審查制度更參觀了國家級的實驗室，與會的藥師都表示這是相當特別的經驗，亦期許在未來能有更多國際合作以及實質的交流。

本人的第一篇口頭論文發表在 2018 年 10 月 26 日下午 1600 開始。題目為以全國性人口為基礎探討使用高效度 statin 藥品與降低骨鬆性骨折的世代研究(High-Potency Statins But Not All Statins Decrease the Risk of New-Onset Osteoporotic Fractures: A Nationwide Population- Based Longitudinal Cohort Study)。本研究主要了解 statin 藥物與骨鬆性骨折（NOF）在許多文獻中被探討有相關性，但不同的 statin 藥物可能有不同影響骨鬆性骨折發生的風險高低，此研究探討分析不同 statin 藥物成分與骨鬆性骨折發生的關係。方法是從台灣全民健康保險研究資料庫中，納入包括 2004 年 1 月至 2013 年 12 月的骨鬆性骨折病例組和非骨鬆性骨折對照組。統計方式以風險比（HR）來評估使用 statin 相關的骨鬆性骨折風險， statin 非使用者當作對照組。本研究結果顯示在 10 年追蹤研究期間，共有 170,533 名高血脂患者，診斷為骨鬆性骨折患者有 44,405 名。經調整年齡、性別、共病症和併用藥品等因子

後， lovastatin 藥物發生骨鬆性骨折的風險高於非使用者（HR 1.09，95％ CI 1.02-1.15）；而使用 atorvastatin 藥物 (HR 0.78，95% CI 0.74－0.82)與 rosuvastatin 藥物 (HR 0.72，95% CI 0.65－0.80)的病人，發生骨鬆性骨折的風險則較低。另外，simvastatin、pravastatin、fluvastatin 與 pitavastatin 等四種 statin 藥物與發生骨鬆性骨折的風險則無關係。結論為此世代研究支持以前有關於 statin 藥物使用和骨鬆性骨折保護作用的文獻，但不是所有的 statin 藥物。在 10 年追蹤研究的期間觀察到，使用 atorvastatin 藥物或 rosuvastatin 藥物的病人有顯著性降低發生骨鬆性骨折的風險，但使用 lovastatin 則會顯著性增加發生骨鬆性骨折的風險；同時也發現高效度的 statin 藥物在降低骨鬆性骨折風險上，存在有劑量與反應作用兩者間的關係。

職的海報論文發表在2018年10月25日上午0800開始張貼。題目為「探討台灣高血脂病人使用降血脂藥品Statin與發生骨質疏鬆風險的關係Long-term effect of statins and risk of new-onset osteoporosis in the Taiwan cohort study」。本研究之目的為探討有一些觀察性和統合分析研究表示，使用statin藥物的人發生骨鬆風險較低，但另一些隨機臨床試驗的研究結果卻相反，特別是在亞洲人中。本世代研究想要了解在台灣有關使用statin藥物與發生骨質疏鬆兩者間的關係。方法是從全民健康保險研究資料庫中，選取自2001年1月1日起接受statin治療（稱為statin使用者），年齡在50-90歲之間，觀察期間至2013年12月31日。以Multivariable Cox proportional hazards analysis用來評估使用statin治療與

骨質疏鬆發生風險間的關係，另外也使用long-rank test 來評估骨質疏鬆發生的存活分析。結果發現在13年追蹤期間，研究對象有16,146例（10.03％）發生骨質疏鬆，其中3,097名為statin使用者（6.83％）和13049名statin非使用者（11.29％）。而statin治療可以使骨質疏鬆發生的風險降低48％（校正風險比HR為0.52，95％CI 0.50～0.54）。觀察statin治療劑量與骨質疏鬆發生風險間則發現，當累積定義日劑量（cDDDs）分別為28至90，91至365和超過365等三種不同使用劑量時，statin使用者相對於非使用者，其骨質疏鬆發生的校正後風險分別為0.84、0.56和0.23。同時也發現高效度rosuvastatin與atorvastatin和中效度simvastatin對骨質疏鬆的發生有潛在的保護作用。結論是以台灣健保資料庫探討高血脂病人的世代研究發現，statin藥物的使用在男女兩性中都與降低骨質疏鬆發生的風險有關，另外在statin累積治療劑量和不同成分降血脂的效度次分析下，statin對骨質疏鬆保護的作用則也不同。

參、會議心得

本次會議行程相當緊湊，豐富的會議內容，讓人留下許多心得與感想，茲整理摘錄如下：

一、 第 27 屆亞洲藥學聯合會大會完美成功地舉辦完成，與會的各國藥師與學者，對主辦單位的用心安排均深表敬佩，亦對會議所在之馬尼拉留下非常美好且深刻的印象。大會的用心，值得我們台灣學習。

二、 本次大會組織委員會計劃提供多元化的亞洲藥學的廣泛問題之科學解決方案，包括災難中藥師角色的發揮。另外能與來自亞洲和世界各地的醫院藥師和社區藥師一起開展聯合的教育與訓練計劃，受到亞洲各國藥師的啟發，繼續為未來確保為可持續發展的全球目標做出堅實的藥學與公共衛生貢獻。

三、 本次會議成功的經驗，讓我們了解，積極舉辦會議帶來許多正面效益，不僅推廣學術交流，也可大力擴展國軍醫院正面的形象與進行國際藥學外交，值得參考。在這個全球目標時代，藥師有機會利用獨特的藥學專長，技能和能力來影響健康以外的領域，以減少不公平現象，提高基本生活水平，促進公平的社會發展。讓藥學專業為亞洲人民做出更大，更好，更強的貢獻。

建議事項

本次職口頭論文演講內容獲得與會者肯定外，在同一個主題會場(藥物流行病學)總共有七位演講者發表，台灣藥師就佔了四位，足見台灣的藥學水準已臻至國際級之水準，讓全球各醫院之藥師與社區藥師看到台灣在藥學專業之突出研究。

台灣積極參與國際醫學會議是重要且必須的！就國際藥學會議而言，前述所提的 FIP（世界藥學大會）及 FAPA（亞洲藥學聯合會大會）是藥學專業人員在國際上很著名的大會，在這大會中有很多國際上有名且有影響力的學者會來參加，台灣參加的藥師如何在國際上有能見度，並進而藉著國際會議提昇台灣在國際衛生組織上的重要性，最後改善台灣在國際社會醫療健康產業的地位及重視，都是參與國際會議另一項重要的目標。職覺得除了小我之外（發表個人學術研究成果），更應該將小我變成大我（改善台灣在國際上的能見度及重要性）。所以語言的訓練、專業的培養、國際人脈的建立是我近幾年參加國際會議以後逐漸領悟的結論。因此積極的參與國際會議及國際藥學事務發展，這是我認為軍醫院可以展現差異化發展的一項目標。

肆、附件

1.在台灣之夜的晚宴上，食藥署副署長陳惠芳特別頒獎，感謝亞洲藥學會會長王文甫的貢獻

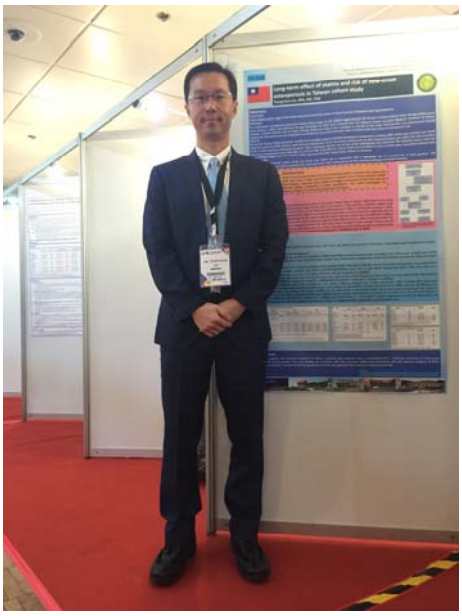
2.與藥師公會全聯會理事長、各理監事，各地公會理事長在會議中心前合影

3. 亞洲藥學會在 10 月 24 日至 27 日於菲律賓馬尼拉舉辦第 27 屆年會，吸引 24 個會員國 1800 位亞洲藥師齊聚一堂，其中共有 120 位來自臺灣的藥師。

4. 大會識別證。

5.口頭論文發表與出席會議證書。

6.海報論文發表與證書。



FAPA 2018

Federation of Asian Pharmaceutical Associations (FAPA)
Philippine Pharmacists Association, Inc. (PPhA)

Certificate of Appreciation

is given to

TSUNG-KUN LIN

for his/her **Poster Presentation** entitled *"Long-term effect of statins and risk of new-onset osteoporosis in the Taiwan Cohort study"* during the 27th Federation of Asian Pharmaceutical Associations (FAPA) Congress with the theme: "Pharmacists for the Global Goals: Creating Value Beyond Health" held on 24-27 October 2018 at the Philippine International Convention Center Pasay City, Metro Manila, Philippines

Joseph Wang — Joseph Wang

Yolanda R. Robles

7.口頭論文接收與演講時間表。

FAPA 2018
The 27th Federation of Asian Pharmaceutical Associations Congress
MANILA, PHILIPPINES 24-27 OCTOBER 2018

Date: 24 July 2018
Subject: Acceptance of paper for oral presentation
From: FAPA 2018 Scientific Subcommittee
To: TSUNG-KUN LIN

Congratulations!

We are pleased to inform you that your paper entitled,

High-potency statins but not all statins decrease the risk of new-onset osteoporotic fractures: a nationwide population-based cohort study

has been accepted for oral presentation at the 2018 Congress of the Federation of Asian Pharmaceutical Associations (FAPA) to be held at the Philippine International Convention Center in Pasay City, Philippines. Details of your presentation are shown below.

- Schedule/Time Slot: 26 October 2018 (Friday), 16:00-16:15
- FAPA Section: Pharmacoepidemiology and Pharmacoeconomics Section
- Venue: Meeting Room 2

All oral presenters are requested to submit their presentation slides on or before 25 October 2018 (Thursday), 17:00, at the Speakers' Viewing Room.

Accepted papers shall only be presented at the Congress and be included in the Abstracts Book if the presenting author has registered on or before 17 August 2018. We encourage you to avail of the early bird registration before its deadline on 31 July 2018.

We are looking forward to learning from you at the FAPA Congress!

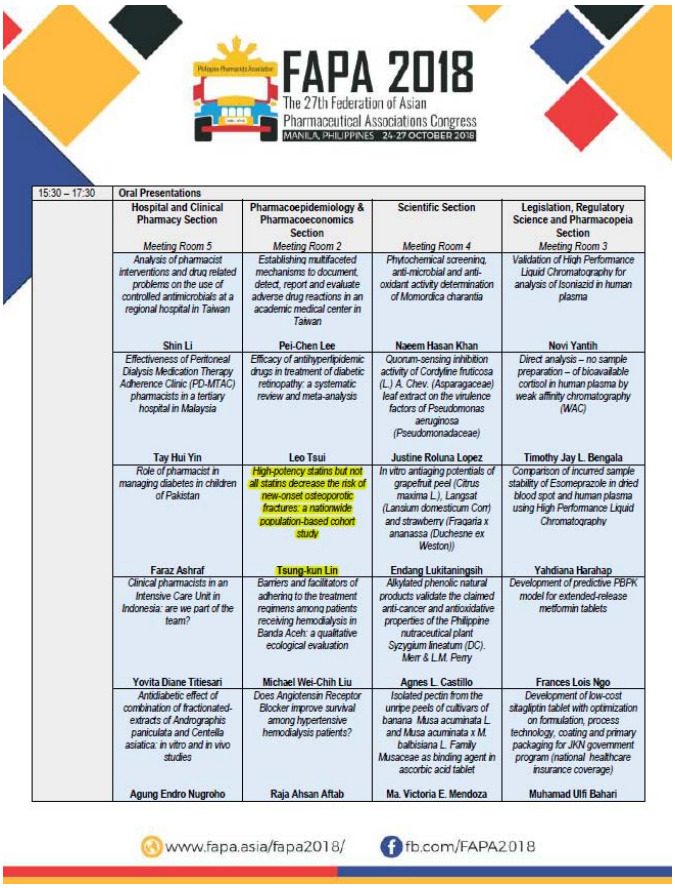
Sincerely yours,

IMELDA G PENA, RPh, DrPH
Convention Chair, FAPA 2018 Congress

Noted by:

YOLANDA R ROBLES, RPh, PhD
President, Philippine Pharmacists Association

www.fapa.asia/fapa2018/ fb.com/FAPA2018


FAPA 2018
The 27th Federation of Asian Pharmaceutical Associations Congress
MANILA, PHILIPPINES 24-27 OCTOBER 2018
15:30 – 17:30
Oral Presentations
Hospital and Clinical Pharmacy Section
Meeting Room 5
Pharmacoepidemiology & Pharmacoeconomics Section
Meeting Room 2
Scientific Section
Meeting Room 4
Legislation, Regulatory Science and Pharmacopeia Section
Meeting Room 3
Analysis of pharmacist interventions and drug related problems on the use of controlled antimicrobials at a regional hospital in Taiwan
Shin Li
Establishing multifaceted mechanisms to document, detect, report and evaluate adverse drug reactions in an academic medical center in Taiwan
Pei-Chen Lee
Phytochemical screening, anti-microbial and anti-oxidant activity determination of Momordica charantia
Naeem Hasan Khan
Validation of High Performance Liquid Chromatography for analysis of Isoniazid in human plasma
Novi Yantih
Effectiveness of Peritoneal Dialysis Medication Therapy Adherence Clinic (PD-MTAC) pharmacists in a tertiary hospital in Malaysia
Tay Hui Yin
Efficacy of antihyperlipidemic drugs in treatment of diabetic retinopathy: a systematic review and meta-analysis
Leo Tsui
Quorum-sensing inhibition activity of Cordyline fruticosa (L.) A. Chev. (Asparagaceae) leaf extract on the virulence factors of Pseudomonas aeruginosa (Pseudomonadaceae)
Justine Roluna Lopez
Direct analysis – no sample preparation – of bioavailable cortisol in human plasma by weak affinity chromatography (WAC)
Timothy Jay L. Bengala
Role of pharmacist in managing diabetes in children of Pakistan
Faraz Ashraf
High-potency statins but not all statins decrease the risk of new-onset osteoporotic fractures: a nationwide population-based cohort study
Tsung-kun Lin
In vitro antiaging potentials of grapefruit peel (Citrus maxima L.), Langsat (Lansium domesticum Corr) and strawberry (Fragaria x ananassa (Duchesne ex Weston))
Endang Lukitaningsih
Comparison of incurred sample stability of Esomeprazole in dried blood spot and human plasma using High Performance Liquid Chromatography
Yahdiana Harahap
Clinical pharmacists in an Intensive Care Unit in Indonesia: are we part of the team?
Yovita Diane Titiesari
Barriers and facilitators of adhering to the treatment regimens among patients receiving hemodialysis in Banda Aceh: a qualitative ecological evaluation
Michael Wei-Chih Liu
Alkylated phenolic natural products validate the claimed anti-cancer and antioxidative properties of the Philippine nutraceutical plant Syzygium lineatum (DC). Merr & L.M. Perry
Agnes L. Castillo
Development of predictive PBPK model for extended-release metformin tablets
Frances Lois Ngo
Antidiabetic effect of combination of fractionated-extracts of Andrographis paniculata and Centella asiatica: in vitro and in vivo studies
Agung Endro Nugroho
Does Angiotensin Receptor Blocker improve survival among hypertensive hemodialysis patients?
Raja Ahsan Aftab
Isolated pectin from the unripe peels of cultivars of banana Musa acuminata L. and Musa acuminata x M. balbisiana L. Family Musaceae as binding agent in ascorbic acid tablet
Ma. Victoria E. Mendoza
Development of low-cost sitagliptin tablet with optimization on formulation, process technology, coating and primary packaging for JKN government program (national healthcare insurance coverage)
Muhamad Ulfi Bahari
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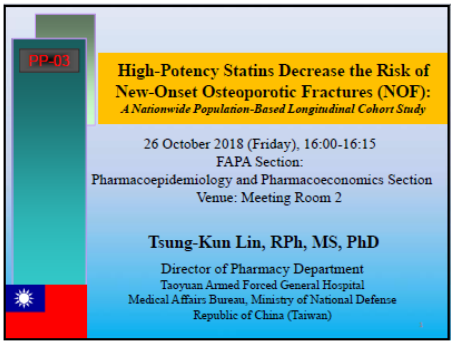
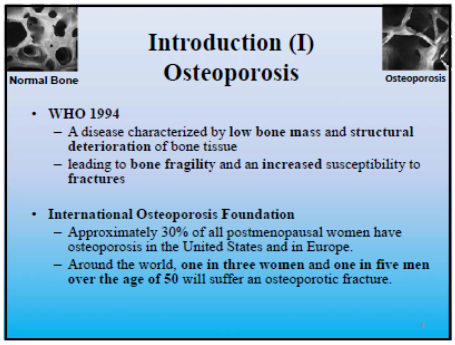
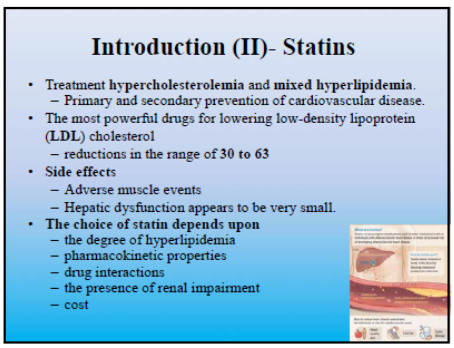
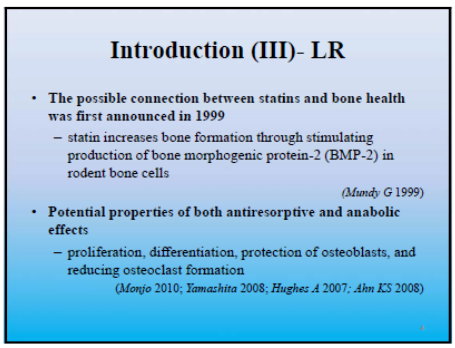
fb.com/FAPA2018

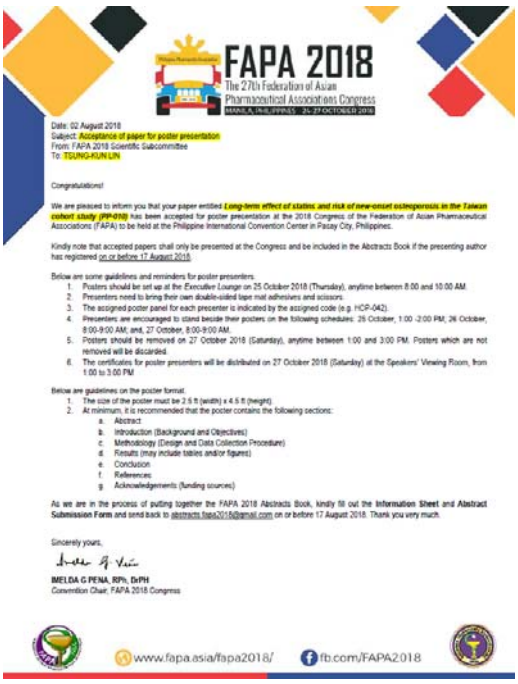

PP-03
High-Potency Statins Decrease the Risk of New-Onset Osteoporotic Fractures (NOF):
A Nationwide Population-Based Longitudinal Cohort Study
26 October 2018 (Friday), 16:00-16:15
FAPA Section:
Pharmacoepidemiology and Pharmacoeconomics Section
Venue: Meeting Room 2
Tsung-Kun Lin, RPh, MS, PhD
Director of Pharmacy Department
Taoyuan Armed Forced General Hospital
Medical Affairs Bureau, Ministry of National Defense
Republic of China (Taiwan)


Normal Bone
Introduction (I)
Osteoporosis
Osteoporosis
WHO 1994
A disease characterized by low bone mass and structural deterioration of bone tissue
leading to bone fragility and an increased susceptibility to fractures
International Osteoporosis Foundation
Approximately 30% of all postmenopausal women have osteoporosis in the United States and in Europe.
Around the world, one in three women and one in five men over the age of 50 will suffer an osteoporotic fracture.


Introduction (II)- Statins
Treatment hypercholesterolemia and mixed hyperlipidemia.
Primary and secondary prevention of cardiovascular disease.
The most powerful drugs for lowering low-density lipoprotein (LDL) cholesterol
reductions in the range of 30 to 63
Side effects
Adverse muscle events
Hepatic dysfunction appears to be very small.
The choice of statin depends upon
the degree of hyperlipidemia
pharmacokinetic properties
drug interactions
the presence of renal impairment
cost


Introduction (III)- LR
The possible connection between statins and bone health was first announced in 1999
statin increases bone formation through stimulating production of bone morphogenic protein-2 (BMP-2) in rodent bone cells
(Mundy G 1999)
Potential properties of both antiresorptive and anabolic effects
proliferation, differentiation, protection of osteoblasts, and reducing osteoclast formation
(Monjo 2010; Yamashita 2008; Hughes A 2007; Ahn KS 2008)

8.海報論文接受與時間表。



FAPA 2018
The 27th Federation of Asian Pharmaceutical Associations Congress
MANILA, PHILIPPINES · 24-27 OCTOBER 2018

Date: 02 August 2018
Subject: Acceptance of paper for poster presentation
From: FAPA 2018 Scientific Subcommittee
To: TSUNG-KUN LIN

Congratulations!

We are pleased to inform you that your paper entitled **Long-term effect of statins and risk of new-onset osteoporosis in the Taiwan cohort study (PP-010)** has been accepted for poster presentation at the 2018 Congress of the Federation of Asian Pharmaceutical Associations (FAPA) to be held at the Philippine International Convention Center in Pasay City, Philippines.

Kindly note that accepted papers shall only be presented at the Congress and be included in the Abstracts Book if the presenting author has registered on or before 17 August 2018.

Below are some guidelines and reminders for poster presenters.

1. Posters should be set up at the *Executive Lounge* on 25 October 2018 (Thursday), anytime between 8:00 and 10:00 AM.
2. Presenters need to bring their own double-sided tape mat adhesives and scissors.
3. The assigned poster panel for each presenter is indicated by the assigned code (e.g. HOP-042).
4. Presenters are encouraged to stand beside their posters on the following schedules: 26 October, 1:00 -2:00 PM; 26 October, 8:00-9:00 AM; and, 27 October, 8:00-9:00 AM.
5. Posters should be removed on 27 October 2018 (Saturday), anytime between 1:00 and 3:00 PM. Posters which are not removed will be discarded.
6. The certificates for poster presenters will be distributed on 27 October 2018 (Saturday) at the Speakers' Viewing Room, from 1:00 to 3:00 PM

Below are guidelines on the poster format.

1. The size of the poster must be 2.5 ft (width) x 4.5 ft (height).
2. At minimum, it is recommended that the poster contains the following sections:
   a. Abstract
   b. Introduction (Background and Objectives)
   c. Methodology (Design and Data Collection Procedure)
   d. Results (may include tables and/or figures)
   e. Conclusion
   f. References
   g. Acknowledgements (funding sources)

As we are in the process of putting together the FAPA 2018 Abstracts Book, kindly fill out the **Information Sheet** and **Abstract Submission Form** and send back to abstracts.fapa2018@gmail.com on or before 17 August 2018. Thank you very much.

Sincerely yours,

IMELDA G PENA, RPh, DrPH
Convention Chair, FAPA 2018 Congress

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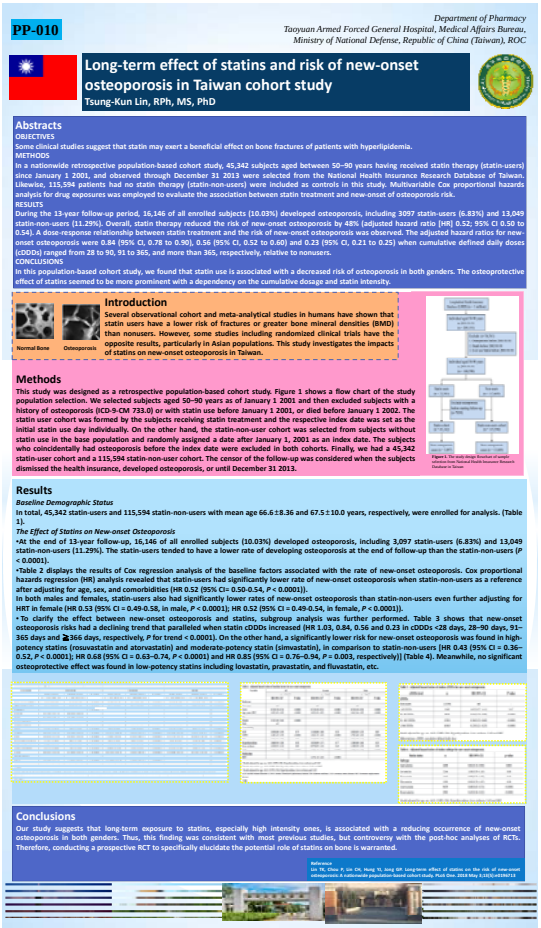

PP-010

Department of Pharmacy
Taoyuan Armed Forced General Hospital, Medical Affairs Bureau,
Ministry of National Defense, Republic of China (Taiwan), ROC

Long-term effect of statins and risk of new-onset osteoporosis in Taiwan cohort study

Tsung-Kun Lin, RPh, MS, PhD

Abstracts

OBJECTIVES
Some clinical studies suggest that statin may exert a beneficial effect on bone fractures of patients with hyperlipidemia.
METHODS
In a nationwide retrospective population-based cohort study, 45,342 subjects aged between 50–90 years having received statin therapy (statin-users) since January 1 2001, and observed through December 31 2013 were selected from the National Health Insurance Research Database of Taiwan. Likewise, 115,594 patients had no statin therapy (statin-non-users) were included as controls in this study. Multivariable Cox proportional hazards analysis for drug exposures was employed to evaluate the association between statin treatment and new-onset of osteoporosis risk.
RESULTS
During the 13-year follow-up period, 16,146 of all enrolled subjects (10.03%) developed osteoporosis, including 3097 statin-users (6.83%) and 13,049 statin-non-users (11.29%). Overall, statin therapy reduced the risk of new-onset osteoporosis by 48% (adjusted hazard ratio [HR] 0.52; 95% CI 0.50 to 0.54). A dose-response relationship between statin treatment and the risk of new-onset osteoporosis was observed. The adjusted hazard ratios for new-onset osteoporosis were 0.84 (95% CI, 0.78 to 0.90), 0.56 (95% CI, 0.52 to 0.60) and 0.23 (95% CI, 0.21 to 0.25) when cumulative defined daily doses (cDDDs) ranged from 28 to 90, 91 to 365, and more than 365, respectively, relative to nonusers.
CONCLUSIONS
In this population-based cohort study, we found that statin use is associated with a decreased risk of osteoporosis in both genders. The osteoprotective effect of statins seemed to be more prominent with a dependency on the cumulative dosage and statin intensity.

Introduction

Normal Bone Osteoporosis

Several observational cohort and meta-analytical studies in humans have shown that statin users have a lower risk of fractures or greater bone mineral densities (BMD) than nonusers. However, some studies including randomized clinical trials have the opposite results, particularly in Asian populations. This study investigates the impacts of statins on new-onset osteoporosis in Taiwan.

Methods

This study was designed as a retrospective population-based cohort study. Figure 1 shows a flow chart of the study population selection. We selected subjects aged 50–90 years as of January 1 2001 and then excluded subjects with a history of osteoporosis (ICD-9-CM 733.0) or with statin use before January 1 2001, or died before January 1 2002. The statin user cohort was formed by the subjects receiving statin treatment and the respective index date was set as the initial statin use day individually. On the other hand, the statin-non-user cohort was selected from subjects without statin use in the base population and randomly assigned a date after January 1, 2001 as an index date. The subjects who coincidentally had osteoporosis before the index date were excluded in both cohorts. Finally, we had a 45,342 statin-user cohort and a 115,594 statin-non-user cohort. The censor of the follow-up was considered when the subjects dismissed the health insurance, developed osteoporosis, or until December 31 2013.

Results

Baseline Demographic Status
In total, 45,342 statin-users and 115,594 statin-non-users with mean age 66.6±8.36 and 67.5±10.0 years, respectively, were enrolled for analysis. (Table 1).
The Effect of Statins on New-onset Osteoporosis
•At the end of 13-year follow-up, 16,146 of all enrolled subjects (10.03%) developed osteoporosis, including 3,097 statin-users (6.83%) and 13,049 statin-non-users (11.29%). The statin-users tended to have a lower rate of developing osteoporosis at the end of follow-up than the statin-non-users ($P < 0.0001$).
•Table 2 displays the results of Cox regression analysis of the baseline factors associated with the rate of new-onset osteoporosis. Cox proportional hazards regression (HR) analysis revealed that statin-users had significantly lower rate of new-onset osteoporosis when statin-non-users as a reference after adjusting for age, sex, and comorbidities (HR 0.52 [95% CI= 0.50-0.54, $P < 0.0001$]).
In both males and females, statin-users also had significantly lower rates of new-onset osteoporosis than statin-non-users even further adjusting for HRT in female (HR 0.53 [95% CI = 0.49-0.58, in male, $P < 0.0001$]; HR 0.52 [95% CI = 0.49-0.54, in female, $P < 0.0001$]).
• To clarify the effect between new-onset osteoporosis and statins, subgroup analysis was further performed. Table 3 shows that new-onset osteoporosis risks had a declining trend that paralleled when statin cDDDs increased (HR 1.03, 0.84, 0.56 and 0.23 in cDDDs <28 days, 28–90 days, 91–365 days and ≧366 days, respectively, P for trend < 0.0001). On the other hand, a significantly lower risk for new-onset osteoporosis was found in high-potency statins (rosuvastatin and atorvastatin) and moderate-potency statin (simvastatin), in comparison to statin-non-users [HR 0.43 [95% CI = 0.36–0.52, $P < 0.0001$]; HR 0.68 [95% CI = 0.63–0.74, $P < 0.0001$) and HR 0.85 [95% CI = 0.76–0.94, $P = 0.003$, respectively)] (Table 4). Meanwhile, no significant osteoprotective effect was found in low-potency statins including lovastatin, pravastatin, and fluvastatin, etc.

Conclusions

Our study suggests that long-term exposure to statins, especially high intensity ones, is associated with a reducing occurrence of new-onset osteoporosis in both genders. Thus, this finding was consistent with most previous studies, but controversy with the post-hoc analyses of RCTs. Therefore, conducting a prospective RCT to specifically elucidate the potential role of statins on bone is warranted.

References
Lin TK, Chiou P, Lin CH, Hung YJ, Jong GP. Long-term effect of statins on the risk of new-onset osteoporosis: A nationwide population-based cohort study. PLoS One. 2018 May 3;13(5):e0194713.