referred to as the bioavailable testosterone fraction. The purpose of the
study was to develop the direct measurement of bioavailable testosterone
that contained albumin bound fraction and free testosterone.
Methods: Bioavailable T is determined by separation of the SHBG
bound T from albumin bound T and free T fractions. Serum
was pre-treated with A Sepharose and extracted with ether.
T derivates were formed using 2% 2-Fluoro-1-Methylpyridinium
p-Toluene sulfonate and 10% triethylamin-dicloromethane. These
Non-SHBG-bound T were refined using solid-phase cartridge column
and measured by means of LC-MS/MS (LIQUID CHROMATO-
GRAPHY MASS SPECTROMETRY) directly. We compared conven-
tional measures of the level of Bioavailable T such as RIA assay and
calculated method (http://www.isium.ch/). The relationship between
conventional measurements was evaluated by linear regression analysis.
Results: Correlations of the RIA assay and calculated method were
significant. The correlation equations between direct and RIA mea-
surement were found as y=0.8382x+97.111. The correlation equations
between direct and calculated measurement were found as
y=1.8149x+750.63.
Conclusions: The assays by LC-MS/MS were performed in fraction
removing SHBG-bound T, these assays could measure bioavailable T
directly.

PP-063
THE IMPACT OF SERUM TESTOSTERONE
AND SEX-HORMONE BINDING GLOBULIN
LEVELS ON THE RISK OF METABOLIC
SYNDROME IN AGING TAIWANESE MEN
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ment of Health, Executive Yuan, Pingtung, Taiwan.
Objectives: The metabolic syndrome (MetS) is associated with signifi-
cant increase in sexual dysfunction and cardiovascular diseases. Previ-
ous studies have reported that low testosterone (T) and sex hormone-
binding globulin (SHBG) levels could increase the risk of MetS, but
were limited in Taiwanese population. The aim of this study is to
evaluate the impact of serum T and SHBG levels on the risk of MetS
in aging Taiwanese men.
Materials and Methods: A free health screening for men older than 40
years was conducted by Kaohsiung Medical University Hospital in Kaohsiung, Taiwan. All participants completed detailed physical exam-
ination and answered a health questionnaire to evaluate socio-
demographic data and personal habits. Blood samples were drawn
between 8:00 and 11:00 AM to determine serum total T, albumin,
SHBG, AC sugar and lipid profiles. Free T level was calculated accord-
ing to the Vermeulen formula. The definition of MetS is according to
the modified NCEP-ATPIII criteria.
Results: 614 men with mean age of 55.8±4.7 years (range: 43-83 years)
were included for final analysis. 38.1% participants were diagnosed as
having MetS. Subjects with MetS had significant lower total T and
SHBG levels than those without. In addition, the number of MetS
components was also significantly correlated with Total T (r=0.151,
p<0.001) and SHBG (r=0.235, p<0.001) levels, but not Free T level.
Subjects with lowest quartile of TT levels and SHBG levels will pose
1.56 and 3.73-fold risk to have MetS compared to those with highest
quartile of Total T and SHBG levels individually.
Conclusions: Both lower Total T and SHBG levels will increase the risk
of MetS in the population of aging Taiwanese men. Further studies
will be needed to evaluate the possible mechanisms behind them.