# Improving medication adherence with adjuvant aromatase inhibitor in women with breast cancer: a randomised controlled trial to evaluate the effect of short message service (SMS) reminder

In Singapore, breast cancer was the most common cancer in females with 11,232 diagnoses from 2014 to 2018. It was also the leading cause of cancer mortality in females, contributing 17% of cancer deaths. Aromatase inhibitors (AI) are commonly used to treat women with hormone receptor-positive breast cancer. However, as AI treatment is long-term, medication adherence is an issue. Non-adherence to medication is associated with increased mortality and higher risk of recurrence among breast cancer patients. While healthcare institutions sometimes use short message service (SMS) to remind patients of follow-up clinic appointments, mobile technology is seldom implemented to monitor medication adherence. In this interview, **Dr Tai Bee Choo**, an Associate Professor from the Saw Swee Hock School of Public Health, National University of Singapore, shares about her recent randomised controlled trial to evaluate the impact of SMS reminder in improving medication adherence with AI amongst women with breast cancer.

**Q1: How do you get interested in studying the medication adherence with AI among breast cancer patients?**

**A:** Although AI has been demonstrated to provide a significant reduction in breast cancer recurrence in post-menopausal women, studies have shown that a proportion of women stopped the therapy before completing the full treatment, while others did not take a daily tablet regularly. Its adherence rate has been reported to decline over time, from 78% to 86% in the first year, to 62% to 79% by Year 3. With mobile phone ownership being prevalent in Singapore, there is a great potential to utilise automated SMS reminder to overcome the adherence barriers and optimise therapeutic effect. Hence, I became interested in conducting a clinical trial to study this.

**Q2: what are the common barriers and facilitators for medication adherence?**

**A:** In our sub-study examining facilitators and barriers to medication adherence, older age was found to be associated with higher adherence, while beliefs about personal need for medication and concerns about its side effects did not affect adherence. Amongst younger participants who were not adherent, forgetting to take medication especially during the weekend, was commonly cited as a reason. Being busy at work or social activities at weekend (which may be different from weekday) were among the reasons for missing doses.

**Q3: Can you briefly introduce your study and what are the major research findings?**

**A:** In this study, we investigated whether SMS improved medication adherence as compared to Standard Care in women with breast cancer who had been receiving AI therapy for at least 1 year, and were continuing to receive it for at least another year. We also examined whether sending SMS reminder to take medication had an effect on serum hormone levels, namely androstenedione, estradiol, and estrone.

We randomly allocated 244 patients equally to receive weekly SMS reminder or Standard Care between May 2015 and December 2018, and followed them up at 6-month and 1-year to evaluate the

outcomes. At 6-month, SMS reminder was found to improve medication adherence as compared to Standard Care. However, it had no effect on medication adherence and serum hormones levels at 1-year.

**Q4: What are the research and clinical implications of this study?**

**A:** SMS reminder had been demonstrated to improve medication adherence in the short-term but had no effect on serum hormones levels in the longer term. As the non-adherent behaviour was unintentional, and mainly due to forgetfulness, this could be overcome by implementing a SMS reminder service. A tailored reminder program according to a patient's daily schedule may better improve its sustainability.

**Q5: Do you have any future research plan based on this study?**

**A:** I have been awarded a NUHS Seed Fund (2021) to pursue biostatistical research on a related topic to study the impact of treatment non-compliance when interpreting the results from randomised trials.

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**Researcher portfolio**

This study was completed by the team led by Dr Tai Bee Choo, Associate Professor from the Saw Swee Hock School of Public Health, National University of Singapore. Her research interest includes the design and analysis of clinical trials, medication non-compliance and analysis of failure time data.

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