

The First-Line TKI Treatments for Locally Advanced or Metastatic Non-Small Cell Lung Cancer with EGFR-Activating Mutations among Asian populations: A Network Meta-Analysis

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Background

- Dacomitinib is a human epidermal growth factor receptor (EGFR) tyrosine kinase inhibitor (TKI)
- The direct comparison between Dacomitinib and Gefitinib as first-line treatments for EGFR mutation positive Non-Small Cell Lung Cancer (NSCLC) has been observed
- Comparative data of dacomitinib versus the other EGFR-targeted TKIs are not available

Objective

- To discover the efficacy of dacomitinib versus other relevant TKI comparators (afatinib, erlotinib, gefitinib, osimertinib and icotinib) for the first-line treatment of EGFR mutation positive NSCLC among Asian populations

Methods

- Systematic review was conducted in the Embase, MEDLINE, and Cochrane Library
- Searches were limited to articles between January 1, 2004 and September 1, 2019
- Only data of Asian populations was included
- Frequentist network meta-analysis (NMA) was used
- The results were presented as relative hazard ratios (HRs)

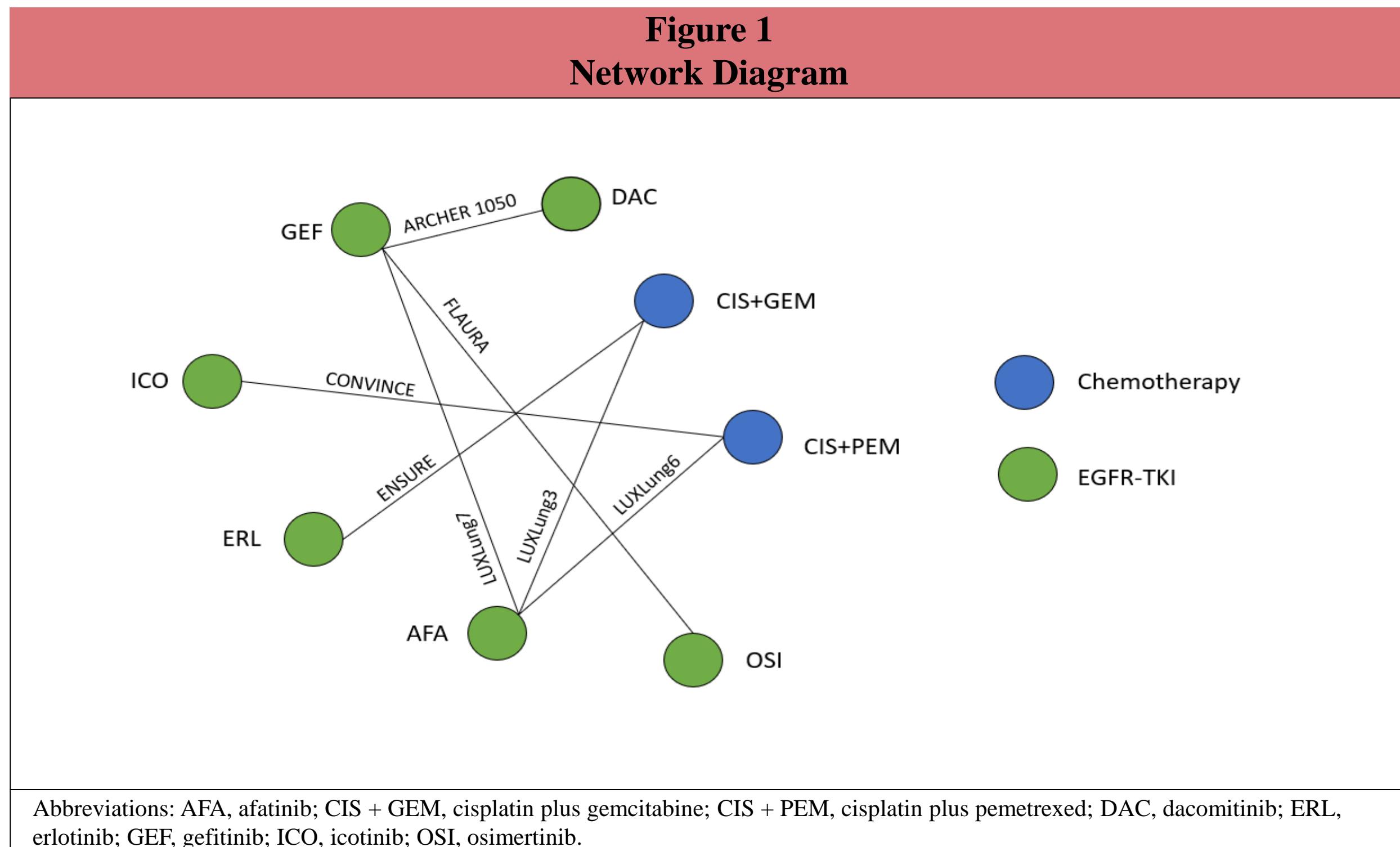
Results

- A total of 7 RCTs with 2126 patients were included (Figure 1)
- Dacomitinib had a consistent trend towards improved overall survival (OS) when compared with the other TKIs (Table 1 and Figure 2)
- Dacomitinib had a statistically significantly improved progression free survival (PFS) compared with erlotinib and gefitinib, and a trend towards improved PFS for afatinib, osimertinib and icotinib (Table 2 and Figure 3)

Conclusion

- Dacomitinib had a consistent trend towards improved OS and PFS when compared with other TKIs for first-line treating locally advanced or metastatic EGFR mutation positive NSCLC among Asian populations.

Figure 1
Network Diagram



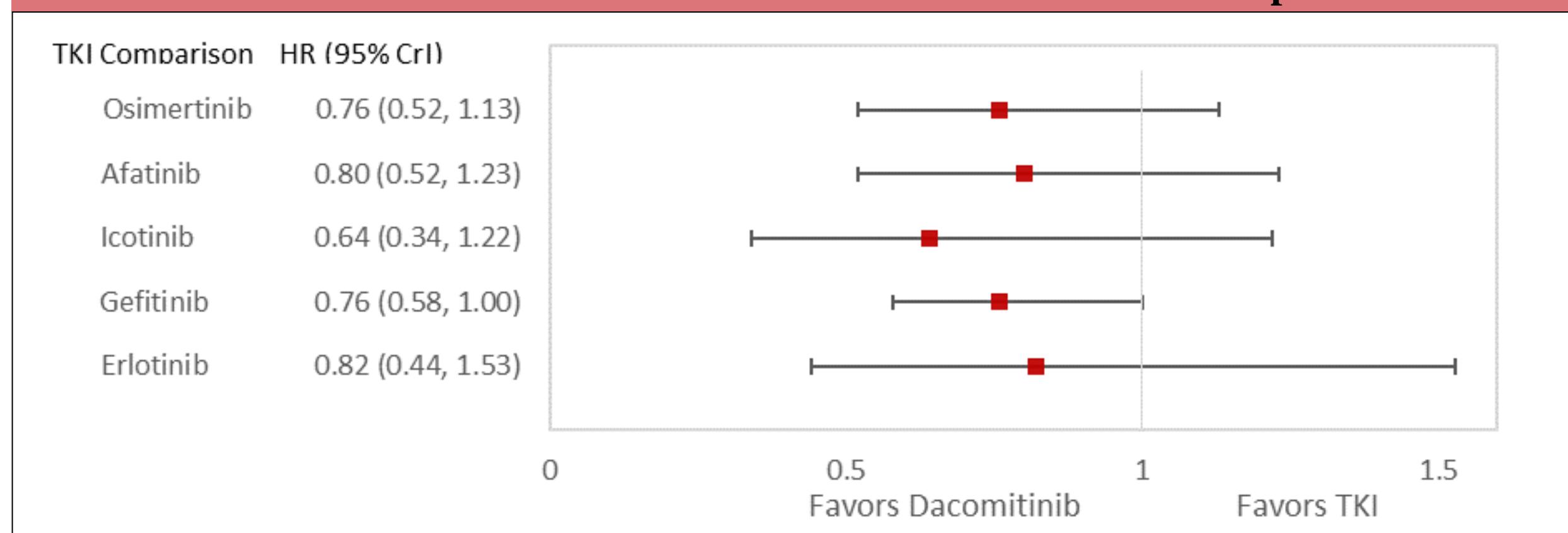
Abbreviations: AFA, afatinib; CIS + GEM, cisplatin plus gemcitabine; CIS + PEM, cisplatin plus pemetrexed; DAC, dacomitinib; ERL, erlotinib; GEF, gefitinib; ICO, icotinib; OSi, osimertinib.

Table 1
Relative Efficacy HRs and 95% CrIs for all EGFR-TKI Comparisons for OS

Treatment (Comparators)	Treatment HR (95% CrI)				
	Afatinib	Dacomitinib	Erlotinib	Gefitinib	Icotinib
Afatinib					
Dacomitinib	1.25 (0.81-1.93)				
Erlotinib	1.02 (0.65-1.61)	0.82 (0.44-1.53)			
Gefitinib	0.95 (0.68-1.33)	0.76 (0.58-1.00)	0.93 (0.53-1.64)		
Icotinib	0.80 (0.50-1.29)	0.64 (0.34-1.22)	0.79 (0.41-1.51)	0.85 (0.47-1.51)	
Osimertinib	0.95 (0.62-1.48)	0.76 (0.52-1.13)	0.93 (0.50-1.76)	1.01 (0.76-1.33)	1.19 (0.62-2.26)

Abbreviations: CrI, credible interval; HR, hazard ratio; OS, overall survival.

Figure 2
Forest Plots of HRs and 95% CrIs for Dacomitinib vs EGFR-TKI Comparisons for OS



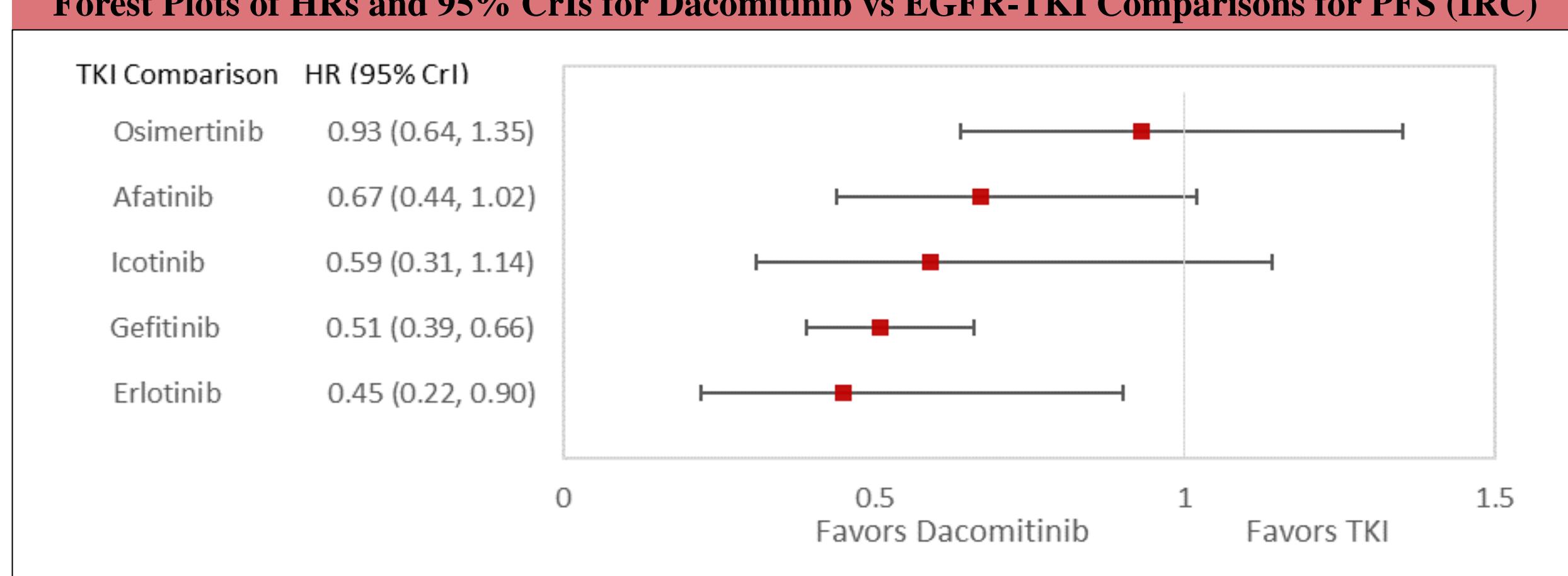
Abbreviations: CrI, credible interval; HR, hazard ratio; OS, overall survival.

Table 2
Relative Efficacy HRs and 95% CrIs for all EGFR-TKI Comparisons for PFS (IRC)

Treatment (Comparators)	Treatment HR (95% CrI)				
	Afatinib	Dacomitinib	Erlotinib	Gefitinib	Icotinib
Afatinib					
Dacomitinib	1.49 (0.98-2.27)				
Erlotinib	0.67 (0.38-1.17)	0.45 (0.22-0.90)			
Gefitinib	0.76 (0.54-1.06)	0.51 (0.39-0.66)	1.14 (0.59-2.19)		
Icotinib	0.89 (0.54-1.45)	0.59 (0.31-1.14)	1.33 (0.63-2.80)	1.16 (0.64-2.11)	
Osimertinib	1.38 (0.90-2.12)	0.93 (0.64-1.35)	2.07 (1.02-4.20)	1.82 (1.39-2.38)	1.56 (0.81-3.00)

Abbreviations: CrI, credible interval; HR, hazard ratio; IRC, independent review committee; PFS, progression free survival.

Figure 3
Forest Plots of HRs and 95% CrIs for Dacomitinib vs EGFR-TKI Comparisons for PFS (IRC)



Abbreviations: CrI, credible interval; HR, hazard ratio; IRC, independent review committee; PFS, progression free survival.