

Supplementary Material

Treating generalized pustular psoriasis (GPP) – Timing and rationale for biologic treatment switching: a Japanese e-Delphi survey

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Supplementary Material

List of the questions included in Round 1, Round 2 and Round 3

Round 1 questions:

1. After reading the shared materials (the previous section presenting the results of the JMDC and MDV databases analysis), do the presented results match your clinical practice? (Very much, somewhat, not really, not at all)
 - a. Please explain: (open)
2. Among the list of biologic drugs available in Japan, please select the drugs that you had prescribed during the flare phases (acute phases) to GPP patients in the last 2 years.
3. In case you have a new patient with GPP present at your practice today, please name the sequence of drugs (biologics and non-biologics) that you would prescribe during the flare phases (acute phases) (open question):
4. From your experience, how often do you decide to switch the biologic drug during the flare phases (acute phases) in your GPP patients? (never, rarely, often, always)
 - a. Please explain: (open)
5. If you decide to switch from one biologic drug to another during the flare phases (acute phases) in your GPP patients, how long do you wait before starting the new biologic drug? (1 day, 1 week, 2 weeks, 3 weeks or more)
6. If you decide to switch a biologic drug to another biologic drug during the flare phases (acute phases) in your GPP patients, do you prescribe another non-biologic drug before the start of the new biologic drug?
 - a. If yes, please list the non-biologic drugs that you prescribe:

7. What criteria are important to you when deciding when or whether to switch from a biologic drug to another in GPP patients during the flare phases (acute phases)?
 - a. *Please rate each item using the scoring system provided*
8. How important to you are the following criteria when deciding to switch from the biologic treatments listed below during the flare phases (acute phases)?
 - a. Please select your top 5 reasons from the list below for each drug
9. Please rate each of the following criteria that you think is important when selecting new biologic drug for GPP patients during the flare phases (acute phases) after the switch?
 - a. Please rate each item using the scoring system provided
10. Do you treat your GPP patients during the maintenance phase with biologic drugs? (never, rarely, often, always)
 - a. If you choose “NOT REALLY” OR “NOT AT ALL”, Please explain:

11. Among the list of drugs available in Japan, please select the drugs that you had prescribed during maintenance periods to GPP patients in the last 2 years
12. From your experience, how often do you decide to switch the biologic drug during the maintenance periods in your GPP patients? (never, rarely, often, always, I do not treat my GPP patients during maintenance phase)
13. What criteria are important to you when deciding when or whether to switch from a biologic drug to another in GPP patients during the maintenance period? (not important, important but not critical, critical) 9 point Likert scale
 - a. Please rate each item using the scoring system provided
14. How important to you are the following criteria when deciding to switch from the biologic drug listed below during the maintenance period?
 - a. Please select your top 5 reasons from the list below for each drug
15. Please rate each of the following criteria that you think is important when selecting biologic drug for GPP patients during maintenance periods after the switch? (not important, important but not critical, critical) 9 point Likert scale
16. Please rate each of the following EFFICACY OUTCOMES that you think it is important to have when deciding to switch biologic drug for GPP patients? (extremely unimportant, not important, important, extremely important) 8 point Likert scale
 - a. Please rate each item using the scoring system provided
17. Please rate each of the following SIDE EFFECTS considering how frequent they are in GPP patients? (never, rarely, sometimes, often, always)
18. Please rate each of the following SIDE EFFECTS considering how they affect your treatment decision to switch biologic drug for GPP patients? (less important for my decision, not so relevant for my decision, important for my decision, extremely important for my decision)
19. How do you usually assess the following drivers of switches in GPP patients treated with biologic drugs?
20. From your experience, how long do you wait before switching from one biologic drug to another biologic drug in GPP patents considering the following drivers. (1 day, 1 week, 2 weeks, 3 weeks or more)
 - a. Please consider the period from the time of your decision until the start of the new biologic drug.
21. Approximately, how many patients with GPP are you currently managing/ have you managed during the last 2 years? PROG: OPEN QUESTION; ONLY NUMERICAL INFORMATION PROG: Min: 1; Max 99
 - a. _____ patient(s)
22. Among your [PROG: Insert the number given in Q19] GPP patient(s), how many patients with GPP have been treated with biologic treatments during the last 2 years? PROG: OPEN QUESTION; ONLY NUMERICAL INFORMATION PROG: Min: 1; Max Q19
 - a. _____ patient(s)

23. Among your [PROG: Insert the number given in Q20] GPP patients treated with biologic drugs, do you prescribe biologic drug as a single agent or in combination with another therapy?
24. Among your [PROG: Insert the number given in Q20] GPP patient(s) treated with biologic drugs, how many patients with GPP have been switched at least once from their biologic treatments during the last 2 years? PROG: OPEN QUESTION; ONLY NUMERICAL INFORMATION PROG: Min: 1; Max Q20
- a. _____ patient(s)
25. Among your [PROG: Insert the number given in Q22] GPP patient(s) who switched at least once from their biologic treatment in the past 2 years, what is the estimated number of biologics switches per patient during a period of 2 years?
26. Among your [PROG: Insert the number given in Q20] patient(s), on average, how long do GPP patients stay on biologic drugs during the treatment course? PROG: OPEN QUESTION; ONLY NUMERICAL INFORMATION PROG: Min: 1;
- a. _____ month(s)
27. Among your [PROG: Insert the number given in Q20] GPP patient(s), how many patients with GPP experienced flare (acute phase) in the last 2 years? PROG: OPEN QUESTION; ONLY NUMERICAL INFORMATION PROG: Min: 1; Max Q20
- a. _____ patient(s)
28. Among your [PROG: Insert the number given in Q20] GPP patient(s) that experienced flare (acute phase), how many episodes of flare a GPP patient could have in 2 years, in average? PROG: OPEN QUESTION; ONLY NUMERICAL INFORMATION PROG: Min: 1; Max 99
- a. _____ flare(s)
29. Which of the following treatment types have you prescribed in the last two years to treat flares in GPP patients during the last 2 years?
30. Which of the following treatment types have you prescribed in the last two years to GPP patients during the maintenance phase during the last 2 years?
31. In general, how satisfied are you from the performance of the following treatments of GPP patients in flares (acute phases)?
32. In general, how satisfied are you from the performance of the following biologics of GPP patients in maintenance phase?

Round 2 questions:

Q3. Reading the findings from the first round, please name the sequence of drugs (biologics and non-biologics) that you would prescribe during the flare phases (acute phases), in case you have a new patient with GPP present at your practice today

Q5. In general perspective and considering the first-round findings, how long do physicians normally wait before starting the new biologic drug after a first line fail during the flare phases (acute phases) in GPP patients?

Q6. In general perspective and considering the first-round findings, if you decide to switch a biologic drug to another biologic drug during the flare phases (acute phases) in your GPP patients, do you prescribe another non-biologic drug before the start of the new biologic drug?

Q6.1 If yes, which of the following drugs is most used between biologic treatments?

Q7. Considering the drivers that did not reach the consensus on first round, how important are the following criteria to you when deciding when or whether to switch from a biologic drug to another in GPP patients during the flare phases (acute phases)?

Please rate each item using the scoring system provided

Q7.1 To what extent do you agree or disagree with the following statement?

Q7.2 Participants reported “Patient’s decision to end the treatment” among the top 5 reasons to switch biologics during acute flare period. Based on you experience, why GPP patients decide to switch the biologic drug during the acute flare period?

_____ [open text]

Q7.3 When thinking about GPP patients who decide to switch their drug, how frequently did they switch because:

Q8.1. How important to you are the following criteria when deciding to switch infliximab during the **flare phases (acute phases)**? Please select your top 5 reasons from the list below (**Show only for participants 3, 4, 5, and 9**)

Q8.2. How important to you are the following criteria when deciding to switch from **secukinumab** during the **flare phases (acute phases)**? Please select your top 5 reasons from the list below (**Show only for participants 1, 2, 3, 4, 5, 7 and 10**)

Q8.3. How important to you are the following criteria when deciding to switch from **adalimumab** during the **flare phases (acute phases)**? Please select your top 5 reasons from the list below (**Show only for participants 4, 5, 8 and 10**)

Q8.4. How important to you are the following criteria when deciding to switch from **ixekizumab** during the **flare phases (acute phases)**? Please select your top 5 reasons from the list below (**Show only for participants 3,4,5,6,7,8,10**)

Q8.5. How important to you are the following criteria when deciding to switch from **brodalumab** during the **flare phases (acute phases)**? Please select your top 5 reasons from the list below (**Show only for participants 4, 5, 6**)

Q8.6. How important to you are the following criteria when deciding to switch from **certolizumab** during the **flare phases (acute phases)**? Please select your top 5 reasons from the list below (**Show only for participants 7, 8 and 10**)

Q9. Considering only drivers that did not reach the consensus on first round, please rate each of the following criteria that you think is important when selecting new biologic drug for GPP patients during the **flare phases (acute phases)** after the switch?

Q9.1 When thinking about GPP patients' perception, please rate each of the following criteria that you think GPP patients prefer to have when selecting new biologic drug during the **flare phases (acute phases)** after the switch?

Q13 Considering the drivers that did not reach the consensus on first round, how important are the following criteria to you when deciding when or whether to switch from a biologic drug to another in GPP patients during the **maintenance period**?

Q 13.1 To what extent do you agree or disagree with the following statement?

Q13.2 Participants reported "Patient's decision to end the treatment" among the top 5 reasons to switch biologics **during maintenance period**. Based on your experience, why GPP patients decide to switch the biologic drug during the acute flare period?

_____ **[open text]**

Q 13.3 When thinking about GPP patients who decide to switch their drug during the maintenance period, how frequently did they switch because: (never, rarely, occasionally, frequently, very frequently)

Q14.1. How important to you are the following criteria when deciding to switch **infliximab** **during the maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 3, 4, 5, 7, 9**)

Q14.2. How important to you are the following criteria when deciding to switch secukinumab **during the maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 1,2,4,5,6,7**)

Q14.4. How important to you are the following criteria when deciding to switch adalimumab **during the maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 4,5,7,9**)

Q14.5. How important to you are the following criteria when deciding to switch ixekizumab **during the maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 1,3,4,5,6,8**)

Q14.6. How important to you are the following criteria when deciding to switch brodalumab **during the maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 4,5,8,9**)

Q14.7. How important to you are the following criteria when deciding to switch guselkumab **during the maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 3,6,7,8,9**)

Q15. Considering the drivers that did not reach the consensus on first round, please rate each of the following criteria that you think is important when selecting new biologic drug for GPP patients during the maintenance period after the switch?

Q15.1 When thinking about GPP patients' perception, please rate each of the following criteria that you think GPP patients prefer to have when selecting new biologic drug during the maintenance period after the switch?

Q17. Considering the frequencies that did not reach the consensus on first round, please rate each of the following SIDE EFFECTS considering how frequent they are in GPP patients.

Q18. Based on your practice, which one of the following methods do you use to assess the below-mentioned drivers of switches in GPP patients treated with biologic drugs?

Q20. From your experience, how long do you wait before switching from one biologic drug to another biologic drug in GPP patients considering the following drivers. Please consider the period from the time of your decision until the start of the new biologic drug.

Round 3 questions:

Q3. Reading the findings from the second round, please name the sequence of drugs (biologics and non-biologics) that you would prescribe during the flare phases (acute phases) in case you have a new patient with GPP present at your practice today.

Q7. Considering the drivers that did not reach the consensus on second round, how important are the following criteria when deciding when or whether to switch from a biologic drug to another in GPP patients during the flare phases (acute phases)?

Please rate each item using the scoring system provided

Q7.1 See above the top 5 reasons [**From first round findings**] to switch a biologic drug to another during the flare phases (acute phases). Regardless of the drug.

To what extent do you agree or disagree with this statement?

Q7.2 When thinking about GPP patients who decide to switch their drug, how frequently did they switch because: (never, rarely, occasionally, frequently, very frequently)

Q8.1. How important to you are the following criteria when deciding to switch **infliximab** during the flare phases (acute phases)? Please select your top 3 to top 5 reasons from the list below (**Show only for participants 3, 4, 5, and 9**)

Q8.2. How important to you are the following criteria when deciding to switch from **secukinumab** during the flare phases (acute phases)? Please select your top 3 to top 5 reasons from the list below (**Show only for participants 1, 2, 3, 4, 5, 7 and 10**)

Q8.3. How important to you are the following criteria when deciding to switch from **adalimumab** during the flare phases (acute phases)? Please select your top 3 to top 5 reasons from the list below (**Show only for participants 4, 5, 8 and 10**)

Q8.4. How important to you are the following criteria when deciding to switch from **ixekizumab** during the flare phases (acute phases)? (**Show only for participants 3,4,5,6,7,8,10**)

Q8.5. How important to you are the following criteria when deciding to switch from **brodalumab** during the flare phases (acute phases)? (**Show only for participants 4, 5, 6**)

Q8.6. How important to you are the following criteria when deciding to switch from **Certolizumab** during the flare phases (acute phases)? (**Show only for participants 7, 8 and 10**)

Q9. Considering only drivers that did not reach the consensus on second round, please rate each of the following criteria that you think is important when selecting new biologic drug for GPP patients during the flare phases (acute phases) after the switch?

Q13 Considering the drivers that did not reach the consensus on second round, how important are the following criteria to you when deciding when or whether to switch from a biologic drug to another in GPP patients during the maintenance period?

Q13.1 When thinking about GPP patients who decide to switch their drug during the maintenance period, how frequently did they switch because: (never, rarely, occasionally, frequently, very frequently)

Q14.1. How important to you are the following criteria when deciding to switch **infliximab** during the **maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 3, 4, 5, 7, 9, 10**)

Q14.2. How important to you are the following criteria when deciding to switch **secukinumab** during the **maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 1,2,4,5,6,7,10**)

Q14.4. How important to you are the following criteria when deciding to switch **adalimumab** during the **maintenance phase**? Please select your top 3 to top 5 reasons from the list below (**Show only for participants 4,5,7,9, and 10**)

Q14.5. How important to you are the following criteria when deciding to switch **ixekizumab** **during the maintenance phase**? Please select your top 5 reasons from the list below (**Show only for participants 1,3,4,5,6,7, 8,10**)

Q14.6. How important to you are the following criteria when deciding to switch **Brodalumab** during the **maintenance phase**? Please select your top 3 to top 5 reasons from the list below (**Show only for participants 4,5,8,9**)

Q14.7. How important to you are the following criteria when deciding to switch **Guselkumab** **during the maintenance phase**? Please select your top 3 to top 5 reasons from the list below (**Show only for participants 3,6,7,8,9**)

Q15. Considering the drivers that did not reach the consensus on second round, please rate each of the following criteria that you think is important when selecting new biologic drug for GPP patients during the maintenance period after the switch?

Q17. Considering the frequencies that did not reach the consensus on second round, please rate each of the following SIDE EFFECTS considering how frequent they are in GPP patients. (never, rarely, occasionally, frequently, very frequently)

Q20. From your experience, how long do you wait before switching from one biologic drug to another biologic drug in GPP patents considering the following drivers. Please consider the period from the time of your decision until the start of the new biologic drug. (day 1, after 1 week, after 2 weeks, after 3 weeks or more)